The Intonation of Mothers and Children in Early Speech

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CONTENTS

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Abstract

This study set out to compare the use of intonation by mothers and their young children. The question of ways in which a mother might influence the development of her child's intonation is considered. Detailed analysis of maternal intonation enables an explanation to be offered of the diverse conclusions in the literature about how children use intonation in early speech.

Two mother-child pairs were studied in free-play, over a combined age range of 15-28 months.

Intonation forms were related to the functions of utterances for both mother and child and the mother's responses to her child's intonation forms were studied. An utterance function category system and an intonation form category system were devised to carry out the analyses.

The mother's intonation was not found to be a constant and differentiated indicator of utterance function. It varied widely within functions though displaying a certain specificity of form use that was common to both mothers. The intonation of the children was found to closely match the mothers in use of form and it varied in the same manner in relation to utterance function. There was much similarity between the two children.

Mothers did not respond to the intonation of the child as if it were being used as a simple differentiator of utterance function.

The systematic variability of the intonation was such that analysis of the influence of the mother's use on that of the child was made difficult. Conversely, it was possible to demonstrate that each of the children was at least partly responsible for his or her organisation of intonation, the two children being very alike in this respect. It is suggested that the children's development of intonation can be seen to reflect both an innately organised communicative system and the influence of the intonation environment provided by the mother's speech.

The results of this study do not support any one of the diverse conclusions previously reported on the young child's use of intonation, but provide an explanation of most. The explanation is found not in the influence of individual differences in the mother's intonation, but in the way in which the mothers use intonation in speech, revealing a previously unspecified perspective against which to consider the child's intonation. Intonation is seen to be but one element in an integrated expressive code that both mother and child are competent to use.

CHAPTER 1

Intonation in Speech: A Review of its Functions and Development, and Outline of the Study

1.1 Description of the study, definition of intonation and summary of argument

There are three main foci of study in this research into the development of intonation use of two children in the age range of 15 to 28 months:

(i) the forms of the intonation contours used by the children and their mothers;

(ii) the relation between the intonation contours of utterances of the children and their mothers and the communicative functions of these utterances.

(iii) the response of the mother to her child's use of intonation contour.

By 'intonation contour' of an utterance I mean pitch variation of the utterance, which in its turn may be defined for my purposes as a pause-defined segment of vocalisation. The intonation contour thereby encompasses pitch height, pitch jumps and glides, pitch range and duration, and is contained by pauses. Loudness, tempo and voice quality (see Laver 1980) are considered to be separate from, though complementary to, intonation.

The essence of the argument which will be developed in the rest of this chapter is outlined in the following section.

Research into the influence of the mother's linguistic input to the language - developing child has shown that there are various adaptations in the mother's speech in relation to the child's linguistic and cognitive abilities. It has been asserted that the underlying motivation for these adaptions in syntax and lexis is to match the linguistic input to the child's intentions regarding objects, events and people thereby providing the child with a means of learning how to communicate his intentions to others eventually through speech alone.

It has been suggested that sensitive matching of the child's intentions may accelerate his individual rate of development, as measured by mean length of utterance (MLU), syntax and grammar, although individual children develop at individual rates. Adaptations to intonation and utterance length have been suggested to facilitate the child's recognition of meaning units, and also to reduce the amount of information which the child has to handle at any one point. A general conclusion from this work is that the linguistic environment of the child is specifically geared to aid his development and understanding of language and that an essential interaction exists between, on the one hand, the infant's innate motivation to develop language and his language analysis abilities, and, on the other hand, the environment which facilitates and enables/

enables this development to take place. General aspects of mothers' intonation have been studied, but neither the functions of the mother's intonation nor the relation between the mother's intonation and the child's developing intonation use have been systematically studied.

Because intonation exists in utterances of infants virtually from birth (some would argue that it exists even within infant cries) it could be thought of as an innate vocal gesture of universal breadth, in so far as its use can be related to different motivations and, at a later stage, to different intentions in the infant. The search for functions in infant intonation productions becomes most intense during babbling, when the infant is beginning to produce intonation patterns contained in its own language environment, and at around the first word stage where intonation shapes often appear to underlie functional contrasts. No clear picture has emerged, however, regarding contrastive use at an early linguistic stage and very little is known about how the child gradually develops the many and varied uses of intonation in adult language that relate to emotion, intention and interactive engagement. By the age of around three, children can communicate effectively and successfully through speech alone. Therefore, by implication, they must be using intonation appropriately in so far as their communicative intentions require it.

The major element which I feel is missing in the study of intonation development, so far, is knowledge about the intonational environment of the child. If there are adaptations in the mother's use of intonation to the developing child in the same way as there have been shown to be adaptations in the nature of the use of syntax and semantic content, this may provide an explanation of the intonation productions of the child either at an individual or general level, pertaining to the issue of innate and environmental influences in language development. If the mother was influencing the child's intonation development, one might expect to find the child producing/

producing particular intonation shapes which the mother uses, or to find the mother altering her own intonation use as the child gradually develops various uses. When it is said that the mother matches the child's level of understanding regarding propositional or semantic content, could this mean she also matches at a suprasegmental level? Further, systematic study of the mother's use of intonation in regard to adult uses of intonation, may help explain both how the child comes to use intonation in an adult-like fashion, and the order of appearance of such uses (both areas of the child's linguistic development about which very little is actually known).

Evidence suggests that initially mothers use a rising intonation to attract the child's attention and then, at a later point, to encourage the child to take a vocal turn. At some point, however, mothers must start to relate their intonation to more varied communicative intentions, and similarly the child's intonation must become related to such communicative intentions. It is with the examination of maternal intonation and the identification of a mother's influences on the development of intonation use in her child that this thesis is concerned.

1.2 Intonation in adult language; its description and functions

In adult language, intonation is recognised as being an important contributor to the understanding of the meaning of any utterance. Searle (1969), for example, in his work on speech acts suggests that an utterance consists of two (not necessarily separate) parts which are a 'proposition' and 'function indicating device'. He notes that for the English language, function indicating devices include word order, stress, intonation contour, punctuation, the mood of the verb and finally the set of so-called performative verbs.

Intonation may be thought of as one of the prosodic systems in language/

language - 'prosodic systems' being defined as 'vocal effects constituted by variations along the parameters of pitch, loudness, duration and silence' (Crystal, 1969 p.128). Crystal defines 'intonation' as being the result of a combination of prosodic features and views these prosodic features as forming a continuum of relevance to the intonation signal although he says 'tone' (pitch direction), 'pitch range' and 'loudness' are the most important (Crystal, 1969 p:195). Other non-segmental aspects of speech such as 'voice qualifiers' (e.g. whisper, creak) and 'voice qualifications' (e.g. laugh, cry) Crystal calls 'paralinguistic' features and defines these as being 'vocal effects which are primarily the result of physiological mechanisms other than the vocal cords, such as the direct result of the workings of the phary ngeal, oral or nasal cavities' (Crystal 1969 p:128).

Brown (1977) includes under the term 'paralinguistic' certain features of pitch variation such as the extent to which the pitch moves up and down and whereabouts in the voice range an utterance is placed. The terms 'prosodic' and 'paralinguistic' are sometimes used in a 'functional' way to refer respectively to a notional distinction between where the features such as pitch, stress and loudness serve to mark lexical and grammatical differences in speech and where these features mark attitude or emotion in speech (Garnica 1977). However, in actual communication these aspects of speech combine within the complete meaning of an utterance and thus it can be confusing to attempt to impose the 'functional' distinction on features which are serving simultaneously both these functions, and possibly other functions in addition:

I prefer Crystal's descriptive level of classification and follow in the most part his division of prosodic and paralinguistic systems, although I consider loudness and tempo as prosodic systems separate from, although complementary to, that of intonation.

The intonation contour, as indicated above, is made up of several areas of potential meaning contrasts. Not only does a pitch contour 'rise' or 'fall' - it contains jumps and glides, it begins and ends at particular pitch heights and it ranges within or outwith the highest and lowest points of these heights.

An aspect of meaning in communication often considered to be conveyed by intonation is emotion and attitude. Uldall (1964) reports some conventional associations between intonation pattern and attitude with for example a 'pleasant' attitude being related to intonation patterns with final rises and 'authoritative' or 'strong feeling' being related to a wide pitch range and change of direction.

Brown, Currie and Kenworthy (1980) found however that rising intonation patterns could also reflect attitudes of 'politeness' and 'hectoring' in certain contexts. In addition they emphasise that in some cases the role of intonation in conveying affect is confabulated with that of the accompanying voice quality with certain attitudes being able to be distinguished purely through the manipulation of the voice quality of the utterance, the intonation remaining unchanged.

A general raising of pitch level is associated with strong emotional involvement, such as anger, fear or surprise, of a speaker in the content of his utterance (Scherer and Oshinsky 1977) but other features such as loudness, tempo and rhythm, interacting in various combinations are also found to be of importance in the recognition of the emotional input in an utterance (Scherer and Oshinsky, 1977; Lieberman and Michaels, 1962).

Halliday (1967) asserts that patterns of intonation have a systematic grammatical role in adult language although they may also play an emotional or attitudinal role.

Halliday (1970) uses only 7 descriptions, which he calls 'tones', to classify all intonation patterns, in relation with the concepts of 'tone group' and 'tonic' which are derived from the grammatical structure of an utterance and the most stressed word within, and represent in adult speech 'the most general level of organization that can be imposed upon prosodic data' (Crystal, 1979 pg: 35): The 'tone' is the pitch movement on the tonic syllable.

Halliday (1970) sees the meaning of tones as basically related to our knowledge of the 'polarity' of what we are saying: A falling contour is taken to indicate certainty as to our knowledge of whether something is positive or negative, and a rising contour uncertainty. In this way a falling tone is used for statements and for questions which might be about reasons for things, or identity of persons or objects, but not ones for which the appropriate answer is 'yes' or 'no': Following from this, a tone which involves a reversal of direction such as rising then falling is seen to involve two, possibly contrary, components of meaning: Halliday's application of his 7 tones to speech functions incorporates his 'polarity' dichotomy, although this is not applied to commands, calls and exclamations, and also involves situational constraints such as a 'neutral' context, or 'expressing reservation', or 'a personal opinion offered for consideration, or, in the case of a command form, 'pleading' or 'persuading'.

O'Connor and Arnold (1973) is a further example of a carefully constructed system of intonation use based, like Halliday's system, on 'grammatically relevant'groups of words, which they call ' word groups' (p:3) and the most stressed syllables within these. They outline ten 'tone groups' which they define as a 'grouping of tunes all conveying the same attitude on the part of the speaker' ,(p:39): Further, 'a tone group is unified and distinguished from all other tone groups both by the attitude it conveys and by the pitch features of its tunes' (p.39). A 'tune' is defined as 'the complete pitch pattern of a word group' (p:287). They emphasise that/

that no tone group is used exclusively with any one utterance type, e.g. question or statement, and vice versa, although some sentence types are more likely to be said with one tone group than with any other. They then go on to describe the uses of each of the ten groups with each of the five major utterance types, statement, wh'question, yes-no question, command and interjection. Differences in meaning are explained in terms of attitude, exchange structure, given and new information, focus of interest, involvement, detachment, presuppositions of the speaker or hearer, and various other situational considerations. Use is made of descriptive phrases such as a 'weighty' statement, a 'controlled' command, a 'reserved' interjection.

O'Connor and Arnold's system is sometimes criticised for the sheer amount of detail that it includes, but although it may seem potentially overwhelming to look at so many variables at once it is nevertheless simply a reflection of the complexity and intricacy of normal communication and as such should be viewed positively. Attempts to reduce and conflate categories to make generalisations often result only in ambiguity and confusion.

Opinions vary on the extent to which the form of the intonation contour indicates the function of an utterance independently of the grammatical structure and other features of context (cf. Ladd and Cutler, 1983). It is possible for a rising intonation contour to make an utterance which has a declarative grammatical form function as a question, however, Pike (1945) found no particular 'question' intonation in American English, and a similar lack of association between a particular intonation pattern and a particular grammatical or affective function is indicated by Bolinger (1958), Crystal (1969) and Gunter (1972). Mickey (1977) suggests that the distinction of 'question' or 'statement' in English depends primarily on the level of the pitch <u>height</u> at the end of the utterance rather than the shape of the pitch contour. G. Brown (1977) asserts that a high rise ending on a pitch contour - rising from fairly/

fairly low to high in the voice range - should not be linked with the notion of 'questioning' as such but should rather be thought of as an attitudinal device of 'demanding a response' whether it be respectfully or challengingly. A falling contour is, correspondingly, thought of as 'unmarked' in conveying attitude.

Brown, Currie and Kenworthy (1980) addressed the problem of 'question' intonation specifically. They found that where judges were asked to decide whether or not a particular utterance was a 'question' on the basis of intonation, that no consistent intonational cue emerged. Further, they found in spontaneous conversational data that polar questions had both rising and falling terminal contours. The conduciveness of the question, that is, where the speaker has an expectation of one answer being more likely than the other, was, however, found to be consistently linked to a contour falling to a low pitch height.

Bolinger (1964) and Lindsey (1981) assert that a rising contour indicates the 'incompleteness' of an utterance or a topic or an idea, and would thus, in this sense, in many cases, call for a response.

Halliday (1970) emphasises the way in which the information structure of an utterance in context is revealed by its intonation with 'new' as opposed to 'given' information being stressed. Brazil (1975) is also interested in the role of intonation in information structure from the point of view of the whole discourse rather than the individual utterance. There are in fact three levels at which 'given' and 'new' information can be studied: There is the 'sentence' level, within a given topic of conversation, which is the level that Halliday uses. There is the 'topic' level which encompasses the sentence level but sees relations between pieces of information at a higher level of organization; this is the level studied, for example, by Venneman (1975), of the Prague school. The third level is the meta-communicative one at which Brazil is analysing, where shared and unshared knowledge are organised at the level/

level of the whole discourse and the pragmatic situation in which it is set. Distinguishing two principal pitch movements of 'falling' and 'falling rising' on the most stressed word or syllable in a tone group, he found that these could be related, respectively, to an individual unshared 'proclaiming' perspective regarding the information in the tone group, and to a joint shared 'referring' perspective. Further extended forms of these pitch movements, he asserts, can be related to intensified involvement of the speaker in the content of the utterance. Brazil also found meaning contrasts in the height of the pitch level at the beginning and end of each tone group in relation to preceding and following pitch height.

Crystal (1979,) outlines the type of prosodic features which are used to give meaning in communication and, collating the various findings in the field, distinguishes five functions performed by prosodic features in adult language:

i the grammatical function - where prosodic features indicate a grammatical contrast such as 'statement' versus 'question', or mark so called 'contrastive' sentences such as
'You take the blue one and I'll take the yellow one'.

ii the semantic function - where prosody indicates the focus of an utterance within the universe of discourse, relating utterances to one another, reflecting presuppositions about the discourse and emphasising, where necessary, certain lexical items, thus:
'We didn't watch television last night'.
would suggest a contradictive reply to a prior assertion that the persons in question had watched television the previous night.

iii the attitudinal function - where prosody indicates the speaker's attitude or emotion concerning the subject matter or context.

iv the pychological function - studies have shown that words containing the most stressed syllables in an utterance are more readily perceived, attended to, and recalled (e.g. Blasdell and Jensen, 1970).

v the social function - indexical information about the speaker such as age, sex, class and professional status may be contained within the prosody of an utterance, particularly in the voice quality. Crystal also includes under this category the 'conversational device' function of prosody indicating to a listener whether or not a response is required.

Other recent investigators have shown that intonation can also function to mark whether or not a speaker is continuing with an established topic (Brown et al, 1980). This, and Brazil's (1975) finding of intonation reflecting a shared or non-shared perspective on knowledge could come under Crystal's semantic function or perhaps the social function. In view of the increasing amount of work being done on discourse analysis and the findings arising from it related to prosodic functions (for example, Coulthard, 1977) it could be argued that a category of discourse function would be useful which might incorporate the 'semantic' function and involve also the 'conversational device' functions. Crystal himself emphasises that there is no one-to-one correspondence between prosodic forms and prosodic functions and I would further argue that in any conversational utterance we have at least the 'semantic', the 'attitudinal' and 'social' functions of prosody signalled simultaneously. Crystal additionally points out that prosody contributes to the expressing of the illocutionary force of a speech/

speech act (see Austin 1962, Searle 1969) but does not wish to place this function under any one function category. In fact, it is somewhat confusing to place a prosodically indicated statement/question contrast under the grammatical function as this is really a speech act contrast, albeit one which is grammatically derived. Sag and Liberman (1975) assert that intonation is systematically employed as a means of contrasting the literal and indirect force (where the force of an utterance does not accord with its grammatical form or illocutionary verb) of an illocutionary act. If the notion of 'illocutionary force' is expanded to include 'illocutionary point' (Searle 1976), a superordinate category of 'interactive' function of prosody could perhaps be created, which is described in these speech-act terms, and which may also incorporate information from all other functions of prosody, and encapsulate also the speaker's intended function of the utterance.

Myers (1979) in an analysis of verbal and non-verbal interactive acts in conversation, distinguishes three functional groups of non-verbal acts: iso-verbal, indexical and meta-communicative. Iso-verbal acts are considered to be functionally equivalent to verbal acts and can replace them in conversation. Indexical acts serve a socio-emotional function indicating attitudes and feelings within conversation. Meta-communicative acts have the function of regulating the interaction, such as turn-taking indicators or segmenting an utterance into units of information. Myers notes intonation functioning as an iso-verbal act and as a meta-communicative act. Iso-verbally, intonation is seen to indicate the illocutionary force of a verbal interactive act, either in addition to syntactic force-indicating devices, or in their absence. The intonational marking of tone-unit boundaries and the structuring of the information as, for example, given or new, by means of tonic placement, are considered meta-communicative in function. Myers considers indexical acts to be expressed not by/

by intonation but by 'tone of voice' which, following Abercrombie (1967), comprises voice-pitch fluctuations being superimposed upon the intonation contour. As noted previously, other research has also suggested that it is pitch height and voice-quality rather than rising or falling intonation shapes which play the primary role in indicating emotion or attitude.

Myers in addition puts forward three major functions of interactive acts in adult conversation: ideational-informative, socio-emotional and interaction-regulating. Iso-verbal intonational acts are seen as having an important interaction regulating function.

The foregoing discussion indicates the breadth of functions of intonation and other prosodic features in adult language and communication and also highlights the complexities within any one function category. This being the case, it is very difficult to find examples of where any particular intonation shape can be related directly to a particular function irrespective of contextual considerations. There is a tendency, nevertheless, to associate a falling terminal contour generally with a statement-type function and contrastively a rising terminal contour with a question function, or at least a yes/no question function. In fact it has been shown that no such simple relationship exists although a rising intonation contour can make a 'statement' form function as a 'question'. Barring the conventions of certain dialects and certain types of informative function such as listing or reciting, it is probably the case that generally, in English, informative comments do finish with a falling intonation shape. However, it is also the case that many questions end with a falling shape, particularly wh-questions, but also yes/no questions.

Because the meaning of an utterance depends not only on its proposition and intonation but also upon the context in which the utterance is spoken, which includes, for example, the status of the conversational participants and their knowledge of the speech topic/

topic, which can affect intonation in various ways, it is possible to postulate as many different intonational forms accompanying a particular utterance as one can imagine different features of the context within which the utterance is spoken.

There are perhaps only a few conventional situations where contour and function seem directly related, and the most resilient of these is possibly where a rising contour is used on a spontaneous one word utterance, or phrase, which represents a deleted proposition, and functions as a polar question thus

tea?

The fact that this relationship between contour and function rests entirely upon the contextual restraint of the contour accompanying a deleted propositional phrase or word seems to be often overlooked, and it is possible that this has helped to lead to the overgeneralisation that a rising contour indicates a questioning utterance.

It is nevertheless possible that particular prosodic configurations could be related to particular functional configurations if an appropriate amount of detail is included in both cases; considerations of overall intonation contour, pitch movement on most stressed syllables, pitch levels and pitch range at least on the one hand, and verbal, grammatical, pragmatic, discourse and attitudinal considerations at least, on the other.

In adult communication intonation has been shown to function at various levels of meaning. Different contextual features have been shown to individually affect the intonation shape, possibly derived from a basic distinction in motivation to communicate such as contained within Halliday's active and reflective modes of meaning (Halliday, 1978). It is possible to view the intonation shape of an/

an utterance as being the result of a combination of features of context and content and yet as being one element of meaning which is accompanied by various other function indicating features within a total communicative package

1:3 Intonation in infant communication

Despite their obvious importance in adult communication, intonation and other prosodic systems have received considerably less systematic attention in studies of language development or acquisition than other aspects of language, such as syntax or lexis. Various authors, however, agree that it is 'melodic patterns' or the intonation contours which form the earliest kind of linguistic structuring in infant vocalisations (Lenneberg 1967, Crystal 1975, Halliday 1975) and this has also been asserted for infant cries (Lieberman, 1967; D'Odorico, 1984). Lester (1984) indicates the complexity of structure in the cries of newborns and finds that sound quality also varies in infant cries from birth.

It is not possible to judge at what point a person can be described as having complete intonation usage, for individuals will habitually have different levels and styles of language use - the important thing being to be communicate effectively. It does seem, however, as with other aspects of language, that the child has developed a large part of the intonation system by around the age of three or four years insofar as children by this age can generally converse clearly and must therefore be using and understanding intonation appropriately. That is not to deny that there are still some stylistic refinements to be acquired as suggested by a study by Cruttenden (1974) of the recognition of ritualistic intonation marking in the reading of football scores on the television - an example perhaps of one of the more tedious message tasks which intonation attempts to enliven.

It remains then to consider how the intonation system develops in the young child and what role is played by intonation in early communication.

1.3.1 Infant perceptual sensitivities to fundamental frequency, and discrimination and imitation of vocal pitch.

Early work on prosodic development and infants' responses to adult intonation is reviewed by Crystal (1975) who faults the anecdotal and non-scientific nature of the majority of these studies but who concludes nevertheless that they do indicate that adult intonation patterns are selectively 'picked up' and responded to by very young infants.

Stratton and Connolly (1973) found that 3 to 5 day old infants could discriminate pitch, intensity and temporal differences in tones. Eisenberg (1976) also reports such differential responding in newborns.

Studies by Kearsley (1973), Webster, Steinhardt and Senter (1972) and Hutt et al (1968) showed that infants are perceptually sensitive to the frequency range in which they are likely to be spoken. Kessen, Levine and Wendrich (1979) report imitation of vocal pitch in 3 to 6 month olds, Nakazima (1962) at 8 months, and it seems that the pitch level of infant's vocalisations can alter in response to the pitch level of the voice they are hearing (Webster, Steinhardt and Senter, 1972; Lieberman, 1967). Correspondingly, it has been found that adults alter their pitch level to match that of the infant (Ferguson, 1964).

Kaplan (1969) found discrimination of rising and falling intonation shapes occurring between the ages of 4 and 8 months. Morse (1972) found evidence of this at the even younger age of 2 months.

Discrimination of location of stress has been found at one to four months (Spring and Dale, 1977). Studies of three to four month olds have found discrimination of rhythmic patterns (Demany, McKenzie and Vurpillot, 1977), and discrimination of tonal sequences is reported in five month olds (Chang and Trehub, 1977). Kuhl and Meltzoff (1982) found pitch contour imitation at 5 months. These studies do not mean that the infant does not from an earlier age recognise and respond to intonation as part of a full expressive system within interaction, but that the infant has a growing ability to handle intonation objectively. Delack (1974) asserts that infants gain control of the pitch levels of their utterances during their first year.

1:3:2 The role of prosodic features of the mother's vocalisations in early mother-infant communication:

Recent work has postulated that certain prosodic aspects, particularly rhythm and intonation, of the mother's voice are audible to the foetus in utero (Bushel and Granier Deferre, 1981) and this may contribute to or even underlie, the very early preference observed in newborns for their mother's voice by De Casper and Fifer (1980). Stern (1985) notes that Fifer suggests that it is not in fact pitch range and general stress patterns which allow this discrimination, but voice quality. Mehler et al (1978, 1979) found that 3 week old infants were capable of discriminating their mother's voice but not if she was reading text from right to left or up and down and therefore with abnormal prosody. Mehler concluded that the infant's ability is based primarily upon the rhythms and intonation contours in the mother's speech.

Studies of very early mother - infant communication have emphasised the expressive and regulatory role played by prosodic features of the mother's vocalisations. A sensitive temporal synchrony has been/

been shown to exist between mothers and their infants related to such expressive systems as body movements, facial expressions and vocalisations (Brazelton et al 1975, Als 1979)

Mothers adjust the quality and temporal pattern of their behaviour to obtain a strong response from the infant and in doing so aid the infant in the expression of inherent abilities for interaction (Stern et al, 1977; Kaye, 1977; Brazelton et al, 1974). Trevarthen (1975) observes 2 months olds taking an active part in proto-conversational exchanges with the mother through visual and auditory modalities.

Murray (1980) showed that 2 month old infants recognised and were upset by experimentally induced perturbations of their mothers' expressive responses. Developments in the infants' expressive behaviour cause, in turn, changes in maternal behaviours (Sylvester - Bradley and Trevarthen, 1978; Trevarthen, 1979).

Marwick, MacKenzie, Laver and Trevarthen (1984) in a case study of a mother's use of voice quality in playful interaction with an 18 week old infant found changes in the mother's voice to be a sensitive reflection of changes in her communicative intentions towards the infant. The types of voice quality used by a mother and the nature of the functions served by her voice quality are observed to alter as the infant develops and are seen as adaptations to the nature of the developments in the communicative relationship between the mother and her infant (Trevarthen and Marwick, 1986).

As the infant grows, further systematic changes have been observed in the mother's expressive behaviour towards the infant including such things as rhythmical vocal play and the onset of simple ritualised person-to-person games and person-object-person games, the dynamics of which are realised by the co-ordinated action and/

and vocalisation sequences of the mother and the success of which relies largely upon the rhythm, tempo, intonation and loudness of these vocalisations (Trevarthen and Hubley 1978; Trevarthen 1983 ; Trevarthen and Marwick 1986).

Bruner (1975) relates the development of grammatical forms to the way in which the mother structured earlier games and playful exchanges with her child, and also to the way in which she interprets the prelinguistic behaviour of the child. Bruner (1983) stresses that it is also from the format of these early interactions that the child goes on to be able to 'refer' and 'mean' linguistically and to communicate effectively.

These studies of mother-infant interaction both highlight the importance of the mother's role in the infant's communicative development and also emphasise the preadaptiveness and motivation to communicate which exists in the newborn. It is considered that this is the basis of the child's becoming integrated into the culture of his society. (Trevarthen, 1983; Bruner, 1983; Hymes 1961).

1.3.3 Parental intonation and speech modifications to infants under one year.

Systematic prosodic modifications have in fact been found in the speech of adults to young infants. Various researchers have reported that speech to young infants and young children is at a higher average pitch level (Drach, 1969; Sachs, Brown and Salerno, 1976; Remick, 1971; Blount and Padgug, 1977). In speech to young infants specifically, pitch patterns are characterised by smoothly gliding contours and expanded pitch excursions (Papousek and Papousek, 1981; Stern, Spieker and Mackain, 1982).

Papousek, Papousek and Bornstein (1985) report such modifications in pitch level in speech to infants even in adults who were not parents.

They report that in the first months infants receive patterns of 'striking homogeneity of parental communication' characterised by melodic pitch contours, simplified linguistic structure, slow speech with much mimicry of the infant. They found, also, that contour shape in parent speech could be related to the behavioural emotional state of the infant, and to the categories of messages to be communicated, by which they mean statements or requests or questions. They found, for example, that parents used falling contours when the infant was in a fussy state, but rising contours when the infant was excited in a positive way and in lively parent-infant interaction. Bell-shaped and sinusoidal contours were also found to be more prevalent in lively interaction than at other times. Thus, more generally, features within the parents' speech to the infant could either activate the general state and motor activity in the infant, or soothe and calm the infant.

Parents were found to use only a small number of distinctive contours overall. In one example of a three minute conversation with an actively awake infant they report that nearly 90% of the utterances were characterised with one of five contour patterns repeating between 9 and 44 times. Looking at speech of parents to older children, they report that by the end of the first year infants may experience widely different vocal environments. They suggest that the initial uniformity of vocal communication is biologically determined where later variations are the result of sociological and psychological differences in the parents as they convey more familiar and cultural content. Thus they suggest that initially people cannot inhibit the response of the prosodic modifications outlined above when talking to infants and that is exemplifies 'the psychobiological origins of human care for the cognitive growth in the progeny'.

One recent study questions the assumption that an increased pitch level is, in fact, a universal feature of adult to child speech. Bernstein Ratner and Pye (1984) report that higher pitch is not a feature of the adult to child register in Quiche Mayan, although it was found in an American comparison group. However, the children in this group study were of an older age and the results could reflect the sociological variation referred to by Papousek, Papousek and Bornstein.

Stern, Spieker and Mackain (1982) also show that mothers' use of pitch contours can be related to certain contexts of interaction with their infants defined by the behaviour and affectional state of the infant. In a study of six mother-infant pairs observed when the infants were 2, 4 and 6 months old they found, describing the intonation in terms of its complete contour shape, that rising contours were used when the infant was not visually attending to the mother and the mother was seeking eye-contact. Sinusoidal and bell-shaped contours were used when the infant was gazing and smiling at the mother and the mother wished to maintain the infant's positive affect state and attention. They found different contours were used by different mothers in the context where the infant was visually attending to the mother but not smiling at her and the mother wished to elicit a smile. They note, in addition, that mothers also used certain pitch contours with different sentence types, analysed purely on the basis of grammatical form. Yes-no interrogative forms were found to have rising contours and wh-interrogative forms and imperative forms generally had falling contours. They found that, contrary to their expectations, declarative forms did not have falling contours but bell shaped contours. Grammatical form does not, of course, reliably indicate the communicative function of an utterance. They conclude that contour is related to context and as such the intonation contour can act as a stable information carrying unit expressing the mother's motives, intentions and emotions. The rising contour, in/

in particular, seemed to have the communicative function of requesting eye-contact and they suggest that this could be a precursor to the finding of Ryan (1978) that mothers of infants around one year use a rising contour to elicit a vocal contribution from the child which would thereby indicate the child's attention.

1:3:4 Infant responses to prosodic aspects of parental speech:

One limitation of their study, stressed by Stern, Spieker and Mackain, is that although they have demonstrated that mother's use of intonation contour is related to her infant's behaviour and affect, they have not shown whether the mothers are successful in achieving their desired response from the infant and thus whether the infant responds differentially to the contour shape, as part of an integrated set of expressive behaviours from the mother. There seems, in fact, to be no systematic study of either the infant's differential response to intonation within a communicative interaction or of the infant's apparent attribution of communicative function of intonation contours of the mother, although various studies of early mother-infant communication, as outlined before, have emphasised the importance of both the mother's and the infant's vocalisations as expressive and regulatory instruments within communicative interaction, and certainly the infant very quickly recognises the prosodic features of his own mother's voice:

Grieve and Hoogenraad (1979) suggest that one of Huttenlocher's (1974) examples of a 10-month-old child apparently not being able to understand the meaning of the words 'yes' and 'no' can, in fact, be explained by the fact that, in the particular context of observation, the word 'yes' was said in a 'tone of voice', appropriate to the prohibitive 'no' and the child responded to the 'tone of voice', a phrase which for Grieve and Hoogenraad includes the intonation shape: It is not, however, possible to assess the contribution to the child's response of the mother's voice quality and other contextual cues:

Bruner (1983) gives an example of a mother communicating with her 14 month old, who would ask her child about the identity of an object, which she knew the child knew, using a falling intonation contour. After the child had answered she would then ask an open ended question concerning the object with a rising intonation which Bruner suggests indicates to the child that something new was being asked for. Bruner observed that the child was aware of his mother's presuppositions in such sequences and would sometimes 'tease' her by pretending not to know the answer. Once again, however, it is not possible to isolate the role of the intonation in eliciting this response in the child as the simple pragmatic situation of 'knowing' the answer may have been enough to suggest to the child that he might pretend not to know.

Spitz (1957) observes that around the age of 18 months children respond to rising intonation contours from their mothers with the word 'no' as if attributing some kind of response-requiring function to the contour with which, in their developing independence, they do not intend to cooperate. Barrett (1980), however, reports the opposite, with one child around this age in his study always responding with 'yes' to a rising contour.

While there is little that can be said about the child's differential response or attribution of meaning to specific intonation contours used by others, the intonation productions of the child and his possible contrastive use of contour shape in communication have been looked at in several studies.

1:3:5 Intonation in vocalisations of children in the first and second years; its development and functions:

Infant cries and vocalisations have recently been described in detail in terms of 'metaphonological' features, which are acoustic and articulatory parameters from which well formed units of mature/

mature phonology are derived (Oller, 1980). Stark, Rose and McLagen (1975) have also isolated a number of non-segmental parameters for the description of early cries and vocalisations including pitch, loudness, breath direction and glottal and superglottal constriction. Various stages in the vocal productions of infant have been distinguished (Oller 1980, Stark 1979). They observe that stress and intonation contours are imposed on 'babbling' from possibly around 9 months and certainly before the end of the first year. Some researchers suggest this occurs even earlier at around 6 months (Kaplan and Kaplan, 1970; Lenneberg, 1967, Halliday 1975).

De Boysson - Bardies, Sagart and Durand (1984) in a study of 'babbling' productions of 6, 8 and 10 month infants from different language backgrounds found that adult judges were able to identify infants from their own linguistic community on the basis of metaphonological cues such as voice quality and tonal contrasts which were present within long and coherent intonation patterns. They concluded that this indicated the early influence of the metaphonological features of the target language and showed both that certain rhythmic and intonational properties of the target language had already begun to be acquired and also that there was an early general 'attuning' of the vocal tract in accordance with the laryngeal and superlaryngeal settings that are specific to the target language. Other investigators also show the continuity from babbling to later language development, contrary to the influential claim of discontinuity by Jakobson (1968), in terms of phonotactic pattern and choice of sounds (Oller, Wieman, Doyle and Ross 1976; Oller and Eilers 1982).

Papousek and Papousek (1981) in their study of musical elements in the infant's vocalisation observed in detail intonational characteristics in the vocalisations of their daughter from birth to 16 months. They report that during the first six months her/

her vocalisations were characterised by smooth undulating pitch contours. Rising-falling contours were present in cries from birth; falling terminal glides on vowel sounds appeared in the second and third month during quiet waking; rising contours with steep glides on squealing sounds and melodious intonation patterns appeared from the fourth month. Some contours covered a pitch range of more than two octaves. By ten months, speech-like intonation contours and short melodies were being imitated and by twelve months the child could hum melodies and rhythms of the first phrases of several songs.

From seven months they report that their daughter used a high pitch rising contour as an invitation to mutual play, a horizontal contour with vibrations as a 'nagging request', a slowly falling contour as in a soothing utterance and a high pitch tone with terminal falling glide as an 'indicative' pattern. By 13 months the child was also using 'interrogative' patterns with a terminal rise in pitch and 'negative' patterns.

Carter (1978) notes in a study of one child the systematic use of a falling intonation contour to accompany a protest vocalisation throughout the period under study, which was 12 months to 16 months.

The Papousek s assert that the communicative function of prosodic patterns in the infant is initially to allow the parents to recognise the general behaviour state of the infant and to express emotions and affect, then to intentionally gain and direct the attention of the parents and finally to convey linguistic messages.

Tonkova-Yampol'skaya (1969) reported that intonation patterns can be observed during the first two years of life which match the forms of adult intonation patterns used, it is said, for indicating certain speech functions. A 'request' intonation pattern is reported to appear at 7 months and a 'question' pattern at 13 months. The behavioural evidence is, however, inadequate to indicate such functional intentions in the child.

Delack and Fowlow (1978) looking at the development of prosodic contrastivity during the first year of life found differing distributions of 7 categories of intonation contour used by their sample of 19 infants, depending on various contexts, such as the presence of the mother as opposed to the visual stimulus of an object. No simple relationship, however, between context and contour was found, nor was a contrastive use of contour in terms of function specified. Delack and Fowlow found rising-falling contours to be the most prevalent in their study and there is a suggestion in the literature that end-falling contours in general are most frequently used by the pre-verbal and early-verbal child (Scollon, 1976; Montgomery, 1978).

By around 1 year infants have been observed to use particular intonation shapes in certain contexts, for example as part of a game or ritual activity. The intonation idioms are found to be more stable than the accompanying segmental component (Dore et al, 1976; Crystal, 1979; Menn, 1976, Von Raffler-Engel, 1973). Von Raffler-Engel (1973) claimed that her son, before he used words, used humming with 'sentence intonation' to convey certain messages with, for example, a rising contour being used when he wanted something and 'asked if he could have' it. His first word was observed to be used with two intonation patterns which signalled two different meanings in so far as the reference of the word was altered.

Elliot (1981) cites Griffiths (1974) who reported that one child's early use of the word 'that' had two functions which were distinguished by intonation. One function was to draw attention to an object and simultaneously request its name and the other function was to draw attention to an object and also refer to it, as an elementary deictic pronoun.

Dore (1975) distinguishes several functions of child's utterances during the one word stage such as 'labelling', 'repeating', 'requesting' and 'calling'. He calls such utterance functions 'primitive speech acts', which consist of a primitive force, carried largely by the intonation, and a rudimentary referring expression. He suggests that the function of otherwise similar utterances is distinguished by the intonation contour with, for example, a falling tone being used for 'labelling' and a rising tone for 'requesting an answer'.

A rising tone is also reported as being associated with 'questioning' utterances in young children by Menyuk (1971) and Weeks (1978). Menn (1976) reports a distinction at the one word stage of falls being used for 'demanding' and rises for 'requesting' and 'offering'.

Bruner (1983) presents a more complex picture of intonation use with requests. In an analysis of interaction of two mother-infant pairs, he distinguishes three 'request' types - a request for an object, an invitation to the mother for joint action or a game, and a request for help in action. Both children, from around one year, were observed to have stylised request calls for requesting objects, which consisted of a particular phonemic form with a particular intonation form. Each child had a different request call - one with a rising intonation and one with a falling. Contextual features such as insistence on the part of the child were observed to alter the overall shape of the contour and, in one case, the contour direction. As the children developed over the second year, a sequence of different phonemic and intonation forms were seen to replace the stylised request call in the request object function. For one child a standard phonemic form was observed to be used with one intonation pattern for requests for objects and another for invitations to the mother for joint action.

Menyuk and Bernholtz (1969) found, by the end of the one word stage in a study of one child, different intonation shapes being used on single words. Adult observers reliably labelled different functions for these shapes, such as 'questioning' or 'declarative'. It has been emphasised, however, by other researchers that this does not mean that the children themselves actually intended to 'question' or 'declare'.

Halliday (1975) in a study of his son's language development describes the intonation used in detail and reports that initially between the ages of 9 and 15 months approximately, each of his early words had a constant prosodic modulation and, as such, intonation was not being used as a variable on words. Typically the pitch contours were varieties of falling tones, although personal names were high-pitched level shapes. Halliday reports that during this 'proto-language' phase his son used words only to regulate social interactions and thus not for the purposes of exchanging information. At 19 months the child used a rising tone on utterances requiring a response and a falling tone on utterances for which no response was required. This Halliday interpreted as his son's own way of distinguishing between two broad types of language use, the 'pragmatic' and the 'mathetic'. Halliday (1978) relates these language uses to, respectively, an 'active' and 'reflective' mode of meaning within an intersubjective reality (Trevarthen 1974), which lead directly to the major functional distinctions in adult language of 'interpersonal' and 'ideational' uses of language, where language is used in the first case for social and expressive purposes and, in the second, for representational or cognitive purposes.

Halliday (1975) emphasises that his son's use of the falling/rising distinction in intonation at 19 months (which lasted for about 6 months) is not in accordance with an adult use of intonation and is just one way in which a pragmatic/mathetic distinction in language function could be marked.

Halliday relates the pragmatic/mathetic distinction in language to more specific functional categories such as 'personal', 'interactional', 'regulatory' and 'instrumental' which reflect the intersubjective basis of meaning in communication.

Halliday's categories of language function and the level at which his son was found to make a functional distinction through intonation, are not directly comparable to the speech act distinctions reported by Dore (1975). Indeed, Halliday (1978) criticises the notion of speech act for being a subjective, not an intersubjective, construct, which does not incorporate the 'dynamics of dialogue'. Dore (1979) however, stresses the importance of a conversational model of language development and his functional categories presented in this paper are set within a conversational framework.

A criticism of Halliday's categories is that although the distinctions may be theoretically sound, it is not always possible to decide on the basis of Halliday's descriptions which category an utterance should come under. In addition, although the function categories were described as initially mutually exclusive, it was sometimes found that certain child utterances seemed to have more than one of Halliday's functions (Dore, 1979).

Barrett (1980), in a study of the pragmatic development of two children, demonstrated the difficulties that can arise when attempting to apply Halliday's Instrumental and Regulatory categories - the former being where the child wishes a particular action or service to be carried out and the latter being where the child wishes a particular person to perform some action or service, and concludes that it would be difficult to unambiguously differentiate these functions at the one word stage where the same word is being used for both functions.

Despite these criticisms of both systems of analysis, the findings of Halliday are not totally incompatible with those reporting speech act distinctions. In both cases labelling and indicating type functions are marked by a falling intonation shape and requesting or questioning type functions are marked with a rising intonation. Commands, however, for Halliday's son were marked with a rise because they require a response, where they were found with falls by Menn (1976).

It is noteworthy that Halliday's son is somewhat older than the children studied by Dore and Menn when he marks the pragmatic/mathetic distinction intonationally, and he retains such an intonational distinction even when his verbal and syntactical development is quite advanced and he can produce, for example, wh-question constructions.

Montgomery (1978) analysed intonation use in 5 children aged between 15 and 24 months, and described the 'function' of the children's utterance in terms of 'conversational discourse and situational pragmatics'.

He found that rising intonation shapes were used comparatively rarely in his data and predominately in a small set of limited contexts such as listing, counting, elicited imitation, greetings and politeness markers. Requesting, attention directing, and refusal utterances were all found to have falling contours. Montgomery's findings are thus at variance with both Halliday's and Dore's. Montgomery suggests that Brazil's distinction in adult intonation use between a shared and an individualistic perspective on the information content of an utterance can be used to explain the distinctive use of falling and rising shapes by the children. Montgomery does not elaborate however, on what a shared or individualistic perspective means when applied to a child's communicative intentions (as opposed to adult information/

information structuring) other than that in utterances reflecting an individualistic perspective the content of the utterance is not 'pre-selected' for him by the adult. This seems a somewhat one-sided approach to sharing or not-sharing a perspective.

Studies looking at stress placement, in particular, are generally in agreement that children are stressing systematically in the second year. Atkinson-King (1973) found that children tended to stress the same syllable of a polysyllabic lexical item although the actual pitch direction on the item may change. Wieman (1976), and MacWhinney and Bates (1978) show that stress is used consistently to mark new information as early as the two word stage, and thus is being used within a communicative framework.

The studies reviewed above, although by no means giving a clear picture, do nevertheless support the position that, from at least the early verbal stage, intonation may be being used systematically and contrastively at least some of the time, although not necessarily reflecting an adult-like use and possibly at a child-specific level of organisation. These studies would certainly find the view that intonation is being used in a totally random manner or in free variation to be untenable.

Despite such findings, at least one experimenter (Furrow, 1984) remained unconvinced that these earlier studies had demonstrated that there was any relation at all between prosodic variables in young children's vocalisations and communicative intentions. He set out to test for this relationship at a general level. Taking a sample of two-year-old children he looked at the prosody used with utterances in connection with aspects of their social behaviour and found that utterances made while maintaining eye-contact were on average louder and more highly pitched and more variably pitched. He took these results to indicate that children do, indeed, use prosodic aspects of speech for communicative purposes.

Not all investigators agree, however, that intonation is used/

used systematically during the early verbal stage. Weir (1966) and Miller and Ervin (1964) reported no relation between contour and context or of systematic use of intonation until their children were over 2 years of age and using sentences. Bloom (1973) cites the findings of Lahey (1972) on one child which reported a disappearance at around 2 years of 'sentence' prosody characteristics which had been observed at 16 months, and a subsequent reappearance of sentence prosody at 28 months when grammatical sentence forms had been acquired. Lahey suggests that the early sentence prosody is the result of imitation and that prosodic patterns are used with single word utterances in free variation. Lahey, like Bloom, appears to view intonation as serving a grammatical function with a particular intonation shape being associated with a particular grammatical distinction, and asserts that children learn to use prosody in speech only after they learn to use syntax. Bloom, on the basis of this, maintains that the occurrence of 'question', 'statement' and 'exclamation' contours with a child's one-word utterances should not be taken to indicate that the child is using intonation in a meaningful manner. Bloom, reflecting the focus of interest of language development researchers at that time in syntax and grammar, was concerned with undermining the idea that a one word utterance was 'holophrastic', or standing for a 'sentence', which may have caused a diversion from the real issue which is what was the child's communicative intention as signalled by the utterance (see Dore 1979).

Apart from the studies mentioned above, which conclude the opposite, there are other reasons why Lahey's and Bloom's position is difficult to uphold. Lahey's main justification for her assertion of non-systematic intonation use was the apparent disappearance of intonation contour as the child travels through and emerges from the two word stage. Lahey distinguishes between two words which are 'two successive utterances' and utterances which are 'words in juxtaposition' on the basis that in the former both words have a 'falling terminal shape', equal stressing and are separated by a pause, where in the latter, only the final word has a falling/

falling terminal shape. Words in juxtaposition with unequal stressing and no pause in between were apparently observed early in the two word stage but later were found to have equal stressing and a pause. These later utterances and the successive single utterances are not considered to have normal or recognisable intonation. Scollon (1973) calling such successive single element utterances 'vertical constructions' also maintains they have no contour.

Lahey, then, can be seen to be using the child's use of intonation contour to identify relational aspects of utterances which she then says have no intonation contour because of the discontinuity in the speech flow. On the other hand, however, far from having no contour, such utterances can be seen as having two contours. Indeed it is only because they have two contours, indicated by two main accents and distinct terminal pitch (Garman, 1979) that we can recognise that two propositions are being referred to (Cruttenden 1979). Although the child may be using two words together which could syntactically express one complex proposition, it seems that in some cases the child expresses his related ideas using his one word meaning devices in combination (Griffiths 1979). In this way it would seem that the child is using intonation quite systematically and far from in free variation, and has been doing so in the one word stage.

In addition, it has been shown that stress is used consistently to mark new information as early as the two word stage (Wieman, 1976; MacWhinney and Bates, 1978) and so certain utterances containing a complex proposition are shown to have one overall contour at the two word stage, even if the speech flow is somewhat discontinuous. Klein (1984), in a study of a child's stress placement in words, found that at the age of 21-22 months, words that were part of the child's stable, spontaneous repertoire showed more consistent stress placement than those which were primarily imitative. This study/

study indicates yet another feature for the language developing child to contend with in the production of a linguistically accurate utterance which could affect the flow of an intonation contour.

Further, since the time of Bloom's and Lahey's work children's utterances have increasingly come to be analysed functionally and it has been emphasised that children are primarily developing the ability to express and convey their intentions effectively which means an understanding and appropriate use not only of grammar and syntax but of presuppositional and contextual constraints. Children are seen to develop 'speech acts' not 'sentences' as such, and mothers, for their part, are observed to teach 'speech acts' by, in addition to their own speech act use, emphasising appropriate contextual behaviour in the child in regard to his communicative intentions (Bruner, 1983). Indeed, earlier studies have also indicated that the child's syntax is not the mother's main interest in communication. Brown and Hanlon (1970) found that mothers did not correct grammar but propositional accuracy, and Brukman (1973) reported that it is social appropriateness which mothers correct and not linguistic structure with regard to their children's utterances. Given that words are always used within a communicative context which includes intonation by necessity, there would seem to be no benefit to the child to single out word order to concentrate on at the possible expense of communicative effectiveness. Shatz and Gelman (1977), looking at mothers' speech to young children, found that speech modifications of the mother are based on more than syntactic rules for grammatical simplification and thus the purpose of the modifications is not primarily to teach grammar or syntax.

Clark and Lucy (1975) suggest, on the basis of reaction time experiments, that adults process first the literal meaning of indirect speech acts (whose function is not directly related to the grammatical form) and then the conveyed meaning. Shatz (1974) reported, however, that 2 year olds do not process indirect speech acts in this way, but simply identify the act referred to in the adult utterances under study and perform it. This suggests that/

that young children have sources other than grammar to guide their appropriate conversational behaviour. Indeed, even when children are obviously trying to discover or apply certain grammatical rules, such as is indicated by their creating words like 'breaked', they are also observed at the same stage to continue to use the word 'broke' (Ervin, 1964). Thus their attempts at grammatical analogy do not transcend normal communication but are contained within it. For these reasons it is difficult to be convinced by Lahey's assertion of syntactic primacy affecting the child's use of intonation.

Although Bloom's and Lahey's suggestion of an initially non-systematic intonation use can be thus criticised, other recent studies have, in fact, also reported an apparent lack of meaningful use of intonation. Myers (1975) looking in detail at one child's communicative development in the second year reports no systematic use of intonation but suggests this may be explained by the fact that the child was a late language developer and still using very few words at the end of the study. Barrett (1980) also found that intonation use appeared to be largely 'random' until around 24 months. He found that with one child the rising contour was used randomly until around 21 months, whereafter it gradually generalised to an 'interrogative' function. Additionally, this child used a rising-falling contour at around 22 months on a person's name as if 'calling' (an intonation function which Dore reported finding at 15 months), but also used the same contour on utterances the functions of which would not be described as 'calling'. Barrett concluded, therefore, that the use was random. The other child, aged around 2 years at the end of the study apparently showed no intonational contrasts at all, although rising and rising-falling contours were interpreted by listeners as 'questions' and 'calls' respectively. Little detail is given about the intonation such as pitch height and range, or of any other prosodic features.

Various criticisms have been levelled at studies of early intonation use in children (Crystal, 1979; Furrow 1984). The reliable assigning of intent to a young child is extremely difficult. It has been increasingly emphasised over the years that it is necessary to study very closely the behaviours, vocal and non-vocal, of any child in many different but familiar contexts, before any decisions about intentions can be made (Bruner, 1975; Howe, 1976; Griffiths, 1979; Crystal, 1979). Some of the above studies have been faulted for not providing enough contextual information to support their claim of contrastive intonation use and the suggestion is that there has been a tendency to project ideas about adult intonation uses onto the children's utterances. Indeed it is easy to appreciate how compelling it is to project certain ideas about adult use onto children's intonation. As noted before there are very few 'definite' uses of particular intonation shapes in adult use. One of the most obvious is as has been shown, where a rising contour on a deleted propositional phrase or word indicates a questioning function. This being the case, when a child at the one word stage uses a rising glide on an utterance the compulsion to 'hear' it as an adult-like one word questioning deletion is hard to resist, even more so if the context does not actively suggest some other function. It should not be forgotten however that the infant at the one word stage has no option but to use one word to represent all the varied propositions which he may be attempting to convey, and as such, rules appropriate to adult choices of deletions simply cannot be projected.

Brown (1973) reports some data on Finnish children which pertains to this point. Looking at both English and Finnish children he found that for the English children Yes/No questions were 'recognised' as such by the intonation alone at Stage 1 (MLU 1.75 words) although well-formed Yes/No questions did not appear until Stage 3 (MLU 2.75 words). The Finnish children in his study also produced well-formed yes/no questions at Stage 3, but, because the Finnish language has/

has no distinctive yes/no question intonation, using instead an alteration of word order and a particle, he found it was not possible to recognise any possible yes/no questions in the Finnish children at Stage 1, although, he points out, this did not mean that they did not have the concept of a yes/no question at this stage. Brown suggests that this means that intonation is more easily grasped than rearrangements of word order or the affixation of particles and as such implies that the child is producing adult-like intonation contrasts of the target language at this stage. However, the fact that such questioning functions could not be recognised in the Finnish children at this stage suggests that there was no behavioural or contextual evidence to support his ascription of function, and indeed Brown's choice of word 'recognition' implies that he felt the presence of the form must indicate the function. It would have been very interesting to know if the Finnish children had used a rising intonation pattern at all, but this is not mentioned. Brown's observations are, possibly, an example of the tendency to project adult functions onto adult-like forms produced by children, without contextual support.

A further criticism of the intonation use studies is that the intonation has not been described in enough detail, with important height and range elements being omitted. In addition, the results from different researchers are difficult to generalise because only one or two children have typically been observed.

In conclusion, then, from these studies of the intonation productions of pre-verbal and early-verbal children, it appears overall that intonation is being used systematically by some children for communicative purposes, but that the precise nature of the contrasts and the precise nature of the communicative purposes and the relations between the two seem to vary from child to child or from study to study, and, as no systematic study has been carried out on a large number of children, it is not possible to make generalisations regarding the use a child at this stage makes of intonational aspects of its vocalisations.

Crystal (1979) however extracts from the analyses of Menn, Halliday and his own work 'an analysis of early tonal development' from around 12 months to 18 months, whereby he outlines an order of tonal contrasts of both direction and range, and although not specifying specific functions in all cases, relates most of the contrasts with communicative intentions, interpersonal emotions or situational pragmatics such as 'intensification', 'achievement' and 'impressiveness'. He notes that the first contrast is falling versus level tones which is followed by falling versus high rising tones. A further five contrasts are specified but Crystal points out that initially these features appear on isolated lexical items and cannot at that point be distinguished from 'prosodic idioms', where a particular prosodic pattern always accompanies a particular utterance as, for example, in a nursery rhyme phrase.

Why should such conflicting results exist in the literature? Is it that studies reporting random intonation use have simply not used a sufficiently sensitive and detailed analysis of the intonation and communicative functions? Grieve and Hoogenraad (1979) suggest that some of the confusion over whether or not the young child uses intonation productively may have resulted from a failure to recognise separate phases in the child's development. They suggest that initially all the words have constant prosodic patterns (which was the case with Halliday's son, though Cruttenden (1979) and Von Raffler-Engel (1973) provide counter examples), and then intonation starts to become a separate meaning system. Importantly, they consider it could be the case that at first only some words may function with more than one intonation shape and these intonation shapes may additionally be carried by other words as part of their constant form. The two systems of meaning would then become fully differentiated at a later point.

Thus Grieve and Hoogenraad emphasise that the way in which intonation development is conceptualised is crucial to how the results of various studies are interpreted. Although they/

they themselves suggest within their model that intonation is not being used randomly, their suggestion of partial contrastive use within intonation productions could also incorporate the viewpoint that, at least initially, intonation use is largely random. It is yet to be explained however why amongst, and even within, studies which do report a systematic use by the child of intonation there is no clear picture emerging of the particular functions for which intonation is apparently used.

Pulling together the various results regarding intonation use by the child in the second year, the following options emerge concerning the role of intonation in conveying the communicative intentions of the child.

1. No contribution (implied by the work of Lahey, Bloom and Barrett)

2. Partially or always contributory along the lines generally conceived for adult use (Dore, Menn, Carter, Papouseks, possibly Bruner)

3. Initially non-contributory, becoming always contributory but less refined than generally conceived adult use, distinguishing between modes of meaning rather than specific communicative intentions.(Halliday)
   Possibly the child's own system of contrast.

4. Always contributory, but contrasting only a limited set of routine contexts by imitation of a specific adult form use (Montgomery).

Whether or not one considers these different options to be largely the result of different sensitivities of analysis they do nevertheless highlight three major points which remain unclear in regard to the way in which the child's intonation system develops.

These are:

1: Whether the initial intonation meanings and contrasts are in accordance with those generally accepted as part of adult use, or whether the child initially develops his own system of intonation meaning, or whether some combination of these two possibilities is the case.

2: Why the particular shapes and contrasts that are used are made, or if these contours are innately based.

3: How the child then proceeds from this stage to develop the 'adult' intonation system.

There is a certain amount of evidence supporting the idea that at least some of the intonation contrasts are innately organised. The studies of the communication between mothers and very young babies, noted above, suggest that a very early recognition of intonation function exists in the infant at the level of affective engagement, and the work of the Papouseks (1981) demonstrated that prosodic patterns associated with certain moods and affects remain unchanged from birth. In addition, the very systematic use of intonation by the mother could in its turn be an example of the mother's preadaptation to innate infant responses (Trevarthen 1983a, Papousek and Papousek 1981). This does not explain, however, why, even within studies carried out by the same investigator, and thus using the same level and detail of analysis, there are apparent differences in the meanings of intonational productions of children at slightly later stage. Is it the case that the system of intonation use during the second year is innate only in the sense that it is child created and thus child specific? Or could it be the case that the child is reflecting his specific intonation environment or producing contrasts caused partly by his own creation and partly by his intonation environment?

1:3:6 Maternal intonation and speech modifications to children over one year; their description and functions:

An omission in most of the studies on children's intonation productions in the second year is any consideration of what sort of intonation use the child is hearing:

Recent work on the child's communicative environment has indicated the importance of the mother's speech in supporting the child's development of language (see Snow, 1979; Bruner, 1983; Trevarthen and Marwick, 1986). Largely provoked by the claim of Chomsky (1965) that a child had to have a large innate component in its language development as the speech of adults was inappropriate to language learning, being ungrammatical and disfluent, several studies were carried out which showed that the linguistic environment of the child contained language specifically directed to the child which was anything but ungrammatical and disfluent, incorporating numerous morphological, syntactical, prosodic and semantic modifications (Drach, 1969; Snow, 1972; see also Snow and Ferguson (eds:), 1977), and, in fact, constituted a special register of speech in itself (Ferguson, 1975) It has been found that older children and young adults who are not parents also adopt this 'adult-to-child' style of speech (Sachs and Devin, 1976; Shatz and Gelman, 1973). Snow (1979) concludes that the special style of speech to children serves primarily a communicative function - to be able to converse with the child, hold the child's attention, and be understood, but also serves affective and didactic functions: Mothers limit the kinds of semantic relations used in their speech to those used by their children and match the linguistic input to the child's intentions and focus of interest, making comments and asking questions almost exclusively about what is happening around the child, and the actions of the child and object attributes (Snow 1977): In this way the mother's speech is in many respects shaped by the linguistic and cognitive abilities of the child and his own interests and ideas (Snow 1979). Cross (1978) found that the best predictor of the/

the child's linguistic ability was the percentage of maternal utterances which were semantically related to preceding utterances of the child, and Ellis and Wells (1980) found that children in their study whose linguistic development was both fast and early received a significantly higher proportion of utterances while engaged in routine household activities and significantly more instructions, commands and acknowledgements and repetitions and corrections of their own utterances. Ellis and Wells concluded that it is the selection of semantic content and discourse functions which constitutes the facilitating adaptations in mothers' speech to the language developing child.

The studies of early mother-infant interaction emphasise the adaptiveness and motivation to communicate which exist in the newborn (Trevarthen, 1982) and it seems that language development should be viewed as an interaction between innate linguistic and social predispositions of the child and a suitably sensitive environment tuned to the developing child. Bruner (1983) proposes a witty combination of an adult-provided Language Acquisition Support System (LASS) complementing a predisposing set of language learning capacities of the general idea of a Language Acquisition Device (LAD) put forward by McNeill (1966) which, working together, allow the child to develop language and thereby become part of his culture.

Several studies are in agreement in reporting modifications of certain prosodic features in the mother's voice in speech to children in their second year. It has been found that mother's speech to young children has, in general, a wider pitch range and is more highly pitched and exaggerated (Drach, 1969; Sachs, Brown and Salerno, 1976; Weeks, 1971; Garnica, 1977; Blount and Padgug, 1977). In addition, speech to young children has been found to be at a slower rate than speech to other adults (Broen, 1972; Sachs, Brown and Salerno, 1976; Weeks, 1971).

It has been suggested that intonational modifications in terms of high pitch could be seen as imitations of the child(R.Brown, 1977), but other investigators see more specific communicative functions for the intonation modifications they observe, of which a higher pitch level is only one. Garnica (1977) studied prosodic and paralinguistic features of mothers' speech to 2 and 5 year olds and suggested that the modifications which she found could serve either an 'analytic' or 'social' function. Recording mothers and children, and also mothers with an adult listener (the investigator herself) engaged in highly restricted communicative settings where the mother was required to say specific target sentences, she found that the average fundamental pitch of the speaker's voice is higher to the 2 year old than to the 5 year old and that the frequency range of the speaker's voice is greater to the children than to the adult listener the expansion occurring at the high end of the speech range. In addition, in the speech to the 2 year olds, but not the 5 year olds or adult listener, she found rising intonation contours on grammatical forms which, she claims, would 'normally dictate a falling pitch', eg. imperatives, and also whispering and many instances of more than one primary stress within a sentence unit. Further, in a puzzle task situation she found that the verbs and colour terms in the target sentences were prolonged in the speech to 2 year olds, with only colour terms prolonged in speech to 5 year olds and neither in speech to adults.

Garnica suggests that some of these modifications serve to help the children 'analyse' the message content of the speech, with rising intonation at the end of a sentence indicating the completion of a message unit, and primary stress and duration modifications helping to focus attention on the informative units in the sentence. Other modifications are seen as serving a 'social' function in so far as they may indicate to the child that the speech is addressed to him - higher pitch and possibly whispering; or that it is now the turn of the child to speak - rising intonation shape; or to keep the/

the child's attention - rising intonation shape. The fact that the 5 year olds are more socially and conversationally developed than the 2 year olds was thought to explain why features which Garnica considers as serving a social function are no longer present in the speech to 5 year olds and also why some 'analytic' modifications are no longer necessary.

Garnica explained her 'surprising' finding of rising intonation shapes on imperative utterance forms, which she asserts would ordinarily have a falling shape in adult speech, as being the result of 'social' and 'analytical' functions of intonation within conversation rather than being related to a particular utterance function. She suggests that the 'social' function of the rising contour is to indicate to the child that it is his turn to speak, and to keep his attention, and the 'analytic' function is to indicate the sentence boundary to the child.

The rising contour might serve to indicate to the child that it is his turn to speak, however the content of the mother's utterances would imply that an action rather than an answer was required. Further, the prosodic marking of sentence boundaries is achieved through pausing and other features of the voice, such as voice quality, in addition to pitch contour which need not be rising (Crystal, 1979). Broen (1972) found that in speech addressed to 2-year-olds almost 100% of the utterances were followed by a pause compared to about 25% in speech to adults.

Garnica's finding of rising contours on 'imperatives' in mothers' speech has to be viewed within the limitations of her experimental situation, the most important aspect of this being that in the puzzle task the target sentences which the mother had to say comprised a sequential list of instructions explaining and ordering the activity. Because it is a list rather than spontaneous interactive directions there are various potentially confabulating/

confabulating factors which could be affecting the mother's intonation with children and adults: First, there is the ritual 'listing' intonation (particularly used with children)

eg: one, two, three ....:.... ten counting

red, blue, green (and) yellow colours of objects etc:

which the mother might use to indicate to the child that her utterances, rather than merely suggesting possible movements and actions on the coloured shapes in front of them, constitute, in fact, a specific number of goal directed instructions which will lead to the completion of a particular puzzle shape configuration: A large number of rising intonation shapes is to be expected in this condition: Additionally, because it is a list of instructions one could argue that the 'imperatives' are in fact reduced forms of 'declaratives' about procedure; thus, taking actual examples from the puzzle task, we have, with my additional words in brackets:

1: (you have to) push in the green square
(and then)
2. (you have to) take out the piece:

Further, because two of the sentences relate anaphorically to the sentence before we would expect the initial sentence in each case to have a rising intonation on the basis of 'continuation' - that there is another part of the sequence to follow (cf. Bolinger 1964):

eg: 1 push in the green square (and then)
2: take out the piece

In fact, what seems 'surprising' is the fact the rising contours were not found in the mothers' speech to an adult or to the same extent in her speech to the 5-year-olds: There are, however, further constraints within the experimental situation which may explain this: First, the semantic focus of each sentence is fixed/

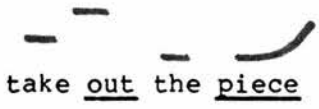
fixed by the experimenter and the placing of the focus can affect to some extent the shape of the following contour. Thus, taking the sentences identified above, we find in sentence 2 the semantic focus 'take <u>out</u>' has been placed at the beginning of the sentence and thus a pitch movement has to occur at this point, as follows:

take <u>out</u> the piece

If the wording had been rearranged we might have had to have,

take the piece <u>out</u>

If the mother had wished to put a rising terminal-shape on the actual sentence used in the task she would have to have had <u>two</u> major pitch movements on this simple instruction thus



take <u>out</u> the <u>piece</u>

which, although perhaps possible within the exaggerated pitch range to a young child, would be inappropriate to an adult, - the sentence would probably have to have ended with a level or slightly falling shape for the adult listener.

Second, the 'adult' to whom the mother is speaking is, in fact, the investigator who made up the list of instructions in the first place. The adult, therefore, unlike the children, not only knew that she was going to receive a set of instructions, making it unnecessary for the mother to indicate this by adopting a 'listing' intonation, but she also knew what the instructions were, so the/

the mother did not have to mark 'continuation' sequences. In fact with the adult the mother is neither 'instructing' nor 'informing' but simply 'reciting'. The two conditions are not comparable.

With the 5 year olds the logic is less obvious, but the mother may also not need to indicate ritually by intonation that she is listing a set of particular instructions because she can say this to the child, although she would probably still indicate continuation in anaphorically related utterance sequences by rises, which, in fact, fits in with Garnica's report of the number of rises.

It seems therefore that Garnica's suggestions of the social and analytic functions in conversation that a rising pitch contour might have, as a means of explaining the use of rising shapes on imperative gramma tical forms, are unnecessary as both the occurrence and changing frequencies of the rising contours can be explained by reference to the actual functions of the mothers'utterances and the inherent contextual constraints of the experimental design.

The idea that a rising intonation can indicate to the child that it is now his 'turn' in some way, and that it serves to get the child's attention is, however, supported in other studies. Ryan (1978) found that mothers use rising contours to gain the childs' attention, as indicated by the child making a vocal contribution to the interaction when the child is around 1 year, and Stern, Spieker and Mackain (1982) found that mothers' intonation use could be related to context, with a rising contour being used when a young infant was not attending to the mother and the mother wished to gain eye-contact.

Clark and Clark (1977) suggest that a rising pitch contour also serves to hold the child's attention. The rising contour does seem to have a special significance for the child.

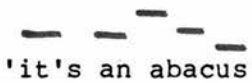
Broen (1972) found that parents tended to use one or two 'sentence frames' such as 'that's a ....' or 'where's the ....' very frequently, with the word following the frame usually receiving heavy stress and an exaggerated intonation shape. Clark and Clark (1977) suggest this helps the child to identify linguistic units in utterances and, by marking off the beginnings of new words, provides a means of introducing new vocabulary.

Mothers' intonation use to young children appears to be different at a general level from what is considered to be adult use and it may be functioning in the ways outlined above to facilitate communication and language development. In the same way as the content of the mothers' utterances is seen to match the intentions and understanding of the child, it is important that the mother provides the child with an intonational input that he will understand and also be able to use. Indeed it may be precisely to provide the child with a consistent input of intonation use that certain adaptations in the mother's word forms are made. The number of syllables in a word containing a pitch excursion within an utterance can result in a different overall contour shape, especially if that word is the last in the utterance.

Taking made-up examples, we could have:

'it's a book'

'it's a bunny'



'it's an abacus'

These could all be examples of a mother informing her child of the identity of an object in identical pragmatic circumstances where one/

one might thus predict a certain intonational uniformity, and indeed the pitch excursion in each case is in the same relation to the preceding syllables, namely a jump rise, but the syllables after the pitch excursion result in a very different overall contour shape.

To adults in possession of a comprehensive vocabulary this may not seem a problem as we are aware of the syllabic grouping, however, to a child learning a vocabulary within communication such differing contour shapes might be a source of some confusion - and, as such, it may be specifically to circumvent such difficulties that mother's speech to children contains 'ie' additions on words that would otherwise have only one syllable, and special reference terms with two syllables, thus enabling a constant overall contour to be used:

it's a doggie

it's a choo-choo

it's a dustbin

Similarly this may be a function of the 'exaggerated' intonation often noted in mother's speech:

it's a spoon

The studies above indicate some prosodic modifications that have been observed generally in mothers' speech to young children. It is not known, however, what sort of <u>variability</u> exists in prosodic features of mothers speech and, in particular, what variability there might be in the ways in which mothers may use intonation to indicate contrasts in utterance functions.

Bruner (1983) gives an example, already mentioned above, of a subtle use of contrast by the mother of a 14 month old. This mother used a falling contour to mark a query about an object label which she knew herself and which she knew the child knew. Bruner observed that the child, aware of his mother's presupposition, would sometimes tease her by pretending not to know the answer. After having used the falling shape to indicate shared knowledge in this way, the mother is then observed to follow up the child's correct answer with another question about the object, but this time open-ended and with a rising intonation. Bruner suggests the mother is thus indicating that something new is being called for, i.e. an answer from the child which the mother does not know beforehand. Whether such a use of intonation is individual to this mother is not known.

1:3:7 The influence of parental intonation on that of the early verbal child:

We have seen that children do imitate the mother's intonation but the question remains as to what extent the mother's intonation use actually influences the child's use. Furrow's (1984) findings, noted above, of the 2-year-old children using louder and more highly and more variably pitched utterances while maintaining eye-contact, indicates that the intonation of mothers and young children deviates in a similar manner, but it does not indicate whether there is a directional or mutual influence, or indeed any influence of one upon the other. Cruttenden (1979) suggests that the amount of variation in pitch used by children during the stage of first meaning expressions (not necessarily words) may depend on the number of attitudinal pitch patterns which are used by the parents to the children.

Van der Geest (1977) provides some specific results related to the relation between the intonation environment and intonation productions of the child. He notes that his child initially relied upon intonation as a means of indicating to him that speech was addressed to him. Van der Geest observed incorrect use by his child of intonation shapes in certain situations which he found he could/

could explain by looking at adult intonation use in these situations. He observed his child at 18 months using a 'question' intonation where an imperative was meant but found adult sentences in the same situations also used question intonation. More specifically he found that his child used a 'question' intonation on these items because the adult offered the label in a question form of whether or not a particular label belonged to a particular picture. He also found the 'question' intonation being used when the child was actually 'asking permission' to have something. Once again, he felt that this error was derived from the type of intonation used by the adult when offering such items to the child. He suggests this type of error, at around the age of 2 years, and later syntactic errors, indicates that certain pragmatic oppositions were being ignored, such as 'information' versus 'permission' questions in the syntactic realisation of communicative intention. This arises, he suggests, because the child is modelling the literal adult utterance too fixedly in certain situations and so fails to recognise the speaker/addressee differentiation in these situations, this being because the child has not fully developed his awareness of his own individuality in communication.

It is not necessary to go this far to explain the child's errors in making certain pragmatic oppositions. Van der Geest himself admits that at the syntactic level it could be partly because the child is omitting the unstressed words in utterances which could include 'may I/can I...' type components. Van der Geest maintains nevertheless that the child is using the literal input sentence, because this is indicated by the child's intonation use. This is a strong argument but where Van der Geest suggests this is because the child is unaware of his own individuality, I would suggest that it may be because the child's input simply does not contain many examples of these pragmatic functions that he does not produce correctly - he lacks examples upon which to base his output. It may not be very often that the adult asks permission of the child or informs the/

the child of his desires regarding his own behaviour. The child may not differentiate the speaker/addressee role in all pragmatic situations, because these very pragmatic situations are not equally appropriate to the conversational roles of parent and young child.

Whatever the case, Van der Geest has presented us with clear examples of the child producing intonation forms which are modelled on the adult input and in these he provides evidence that adult intonation use can directly affect the child's intonation productions.

Related observations regarding the mother's influence are those cited in Sachs (1977) of Kobashigawa (1969) that children tend to retain the intonation of an adult word they imitate, and that the mother actually tries to teach her child the appropriate intonation. She organises her input to the child in such a way that the child receives the 'correct' form of intonation on a word item, even when this item has been initially introduced in a context which demands an alternative form of intonation, such as a rise within a question structure. The example given is of a mother introducing a new item within a 'question' frame e.g. 'can you say doggie' (which is actually a directive and not a question function) and the child imitating the label with its rising intonation leading to the mother repeating the label with a falling intonation, considered to be more 'correct', which the child then imitates appropriately.

1.4 Purpose of this study.

It has been demonstrated that intonation in mother's speech to young children is different from that in her speech to adults. It has also been shown that adult intonation use can directly affect the child's intonation use and that on occasion mothers can be seen to deliberately 'teach' intonation. What is not known at this point, however, is how mothers' intonation is related to contrasts in communicative/

communicative functions; the extent to which the mother's intonation use influences that of her child; and whether variation exists amongst mothers in their use of intonation which might help to explain the variations in intonation uses which have been observed in language developing children. Thus what remains to be done is a systematic study looking at the forms and functions of the mother's intonation in relation to those of her language developing child.

Even if one were to argue that similarities in use might actually be a consequence of the mother imitating the child, or a reflection of an innate use common to both, study of the mother's intonation productions would, nevertheless, provide an essential insight into how intonation is being used, because the mother's intentions are accessible in a way which the child's are not.

The review of studies on mothers' speech has, indeed, underlined the importance of two aspects of the mother's language behaviour. One is the modification of various characteristics of her output of utterances to her child, and the other is the way in which the mothers' utterances relate to the child's utterances and behaviour, not just in terms of content but also in function, which can be quite unadult-like. Thus the mother's response to the child's communicative efforts is important. What influence might the mother's response and attribution of meaning to the child's intonation have on his subsequent development of intonation use?

Various studies remarked on the way in which adults appear to ascribe meaning to utterances of children on the basis of the intonation as if it were used in an adult-like manner, and yet there is the suggestion that this is often not justified if the child is observed closely. It seems unlikely that the mother, who is sensitively reacting to and matching the child's intentions could be/

be misled by intonation in a way so easily seen as erroneous by a relatively unfamiliar observing researcher. What is perhaps more likely is that either mothers do not, in fact, project an adult use onto their child, and thus do not respond as if the child is using an intonation system which follows adult rules, unless this is otherwise indicated by the behaviour of the child. Alternatively, the mother may to some extent, and possibly at a certain stage of development, deliberately respond as if the child is using an adult intonation as a means of teaching the adult system to the child. This latter alternative might apply if the mother felt either that the intonation of the child was not being used in any specific way by the child, or that it was being used in a way which did not in fact agree with the adult usage, and which the mother considered should be altered or refined.

In consideration of this point, it seemed important to include in the study an examination of the way in which the mother's response to the child's intonation can function within the scheme of his development of intonation use.

For the above reasons I felt that a study which looked closely at the mother's intonation use, in addition to the child's, and also at the mother's response to her child's intonation would be worthwhile. Thus the three major questions addressed by this thesis were formulated.

1. What is the nature of the mother's use of intonation in relation to utterance functions in communication with her language developing child?

2. In what ways can the child's use of intonation be related to the mother's intonation use in respect of utterance functions in communication?

3. What is the mother's response to the child's intonation productions, and in what way does this affect the child's subsequent development of intonation use?

CHAPTER 2

Design for a Study of Intonation Use by Mothers and Children from the Second to the Third Years, and Descriptive Methods of Analysis

2.1 The observational setting

I needed to observe the mother and child in communicative exchanges and the nature of the questions I was addressing required a detailed understanding of the total interactive situation. It was important to have high quality voice recordings of the mother and infant but also necessary to video-tape the interaction as it would be impossible to make a decision about something as complex as a speech function as the action progressed. It was important also that both mother and infant were on camera most of the time and I thought it useful to constrain the situation by making it the same for each pair, thus rendering the data more readily comparable. I chose, therefore, to use the departmental studio specifically designed for the observation of playful mother-infant interactions. While it is certainly the case that in order to chart the development of a child's communication one must observe the child closely and regularly in its familiar surroundings engaged in familiar activities, it is, nevertheless, possible to observe snatches of this interaction in the laboratory which must be analysed in the clear understanding that the non-appearance of a particular communicative device does not imply that the child does not possess this. The constraints of the laboratory set-up are such that one can only discuss with certainty things which are seen to happen.

The departmental studio was specifically designed to record mother-infant interaction with as little observer intrusion as possible. Mother and infant were in a bright colourful room with one video camera on a tripod at one end and multi-directional microphones/

microphones positioned on the floor under a chair at one side of the room. The rest of the recording equipment and the observer were in a separate room. In the course of this study two such studios were used as the Department changed premises. Initially the observation room was separated from the play room by a curtain and, after the change of premises, the observation room was actually a separate room within the laboratory. In each case the playroom was decorated with colourful posters of animals, toys and nursery rhyme characters and contained a large box of assorted toys, an armchair and upright chair.

2.2 'Pilot' study, and procedure of main study.

A 'pilot' or 'feasibility' study was carried out in order to ascertain that the observational set-up would yield the type of data I was hoping to collect both in terms of content of interaction and quality of recording. It was also necessary to have some basis on which to decide on the age range and number of subjects in the main study and on the length and number of recording sessions, and to familiarise myself with the type of material for which I would devise analysis systems.

Eight mother-infant pairs were involved in the pilot study. Four of the pairs were friends of friends of mine and four were recruited from a fellow researcher who had completed a study on mother-infant interaction with infants under one year. Two of the pairs were accompanied by an older sibling. This brought the total age range of the children under study from nine months to almost five years. All but two of the children were female and the whole sample was essentially middle class.

Each mother-infant pair or group came to the laboratory for two recording sessions four to six weeks apart. Each recording session lasted approximately 25 minutes. A taxi was arranged to collect the mothers and infants and afterwards to take them home. Mothers and infants were met on arrival by the observer and taken to the studio./

studio. It had been explained to the mother that the study was about how intonation was used in communication between mothers and children how the child developed an adult use of intonation. Mothers were simply asked to play as they would normally with the child - many mothers said that in fact they would rarely play with the child for such a sustained length of time but rather would play for a few minutes at a time in between doing other things about the house, however this was not considered to be a problem. The only constraint on the interaction was that the mother was asked to try to ensure that the child remained in camera shot and did not spend too long facing away from the camera.

The toys in the toy box consisted of a ball, a roll-along wooden ladybird and tortoise, an abacus, a 'trigger-jigger' (plastic shapes which slide onto a pole which when a lever is depressed are pushed up and off the pole and into the air with great effect), a wooden shape-posting box, a book, some soft rubber shapes, crayons and paper, a large rag doll, stacking cubes with a mirror on top, a 'fuzzy felt' set, a wooden pull along 'caterpillar', a small see-through ball with a spinning colourful shape inside, a snow-scene, a cuddly rabbit, a rag doll, some pheasant tail feathers in a jar, a tipper truck and 'digger' tractor, an abacus, large soft cubes made from material with pictures printed on the sides, some 'Lego' cars and people, a squeaking rubber bear, a squeaking rubber cube and a toy train.

The interaction was recorded using a video camera and Sony video recorder using Sony 1/2 inch video tape with a studio quality microphone. A separate audio recording was made simultaneously using a Revox reel to reel tape recorder, running at 9.5 cm/s with a studio quality microphone and using magnetic tape. Microphones were positioned on the floor as much of the speech was directed towards objects on the floor and therefore might not have been picked up so clearly by microphones positioned elsewhere, such as overhead.

After each session there was coffee and juice and biscuits while the observer and mother chatted and watched the video of the session. Mothers were asked about what they felt about the play session and about what sorts of things the child said or did at home or elsewhere which weren't reflected in the play session. Mothers were also asked about any words or sounds which the child used systematically but whose meaning might not be clear to the observer. Mothers were encouraged to ask about the study.

The pilot study indicated that the general procedure and set-up worked well. Many mothers commented that it was very enjoyable to have a social outing which actively involved the child and that the children enjoyed the taxi journeys and the different toys and the fact that they had the mother's undivided attention.

The recordings were of sufficient quality to allow analysis. The audio recordings gave a clear reproduction of both mother and infant speech with few utterances being unintelligible. The video of the interaction was limited by the fact of there being only one static camera. With much of the interaction involving close attention of mother and infant to objects on the floor, facial expressions were not always visible, however the freedom of movement and action gained by not restricting the interaction in any way was felt to compensate for this.

General body kinetics, identity of objects played with, most gestures, gaze direction and moments of eye contact were clear and this was considered to give a detailed enough presentation of the behaviour to enable the intended analysis to be carried out.

The observational set-up and general procedure were retained for the main study.

2.3 The main study; subjects, age points and analysis procedure.

The pilot study showed that the observational set-up did not elicit much vocalising from infants of around one year and under. It has been found that infants of around this age are less likely to vocalise to their mothers when new and interesting objects are available for exploration (Trevarthen and Marwick, 1982). The children of around 2 1/2 years and older, on the other hand, seemed to be in conversation with their mothers virtually all the time, displaying much grammatical development. I wished to focus on the period in development covering the transition from the one word stage to the use of grammatical forms.

This thesis reports findings for 2 mother-child pairs One child is female and the other is male. Both are first born children and both were cheerful and active in the observational setting. Findings are reported for the female subject at the ages of 16 months, 19 months and 24 months. Findings are reported for the male subject at the ages of 20 months, 23 months, 25 months and 28 months. The total age range under study extended from around 16 months to 28 months with overlapping sessions between 19 months and 25 months. Although age does not of course equal 'stage' of development, these age points were a useful comparative control, and far enough apart to reflect individual as well as possible trends in development. Both mothers were middle class. Mothers' accents were not controlled for. This was not considered essential as all results would first be considered on an individual basis before any generalisations would be extracted.

The analysis was carried out on the first 200 utterances of the mother, omitting any that were unintelligible or which consisted of a clearly unfinished propositional content, such as 'what's ...', and on all the utterances of the child contained within this total. This I felt rendered the data more comparable, while helping to restrict the analysis load. The actual amount of time of interaction analysed ranged from about 13 1/2 minutes to 14 1/2 minutes depending on the session.

The data was in initially analysed at a 'descriptive' level involving transcription of the vocalisations, description of actions, gestures and facial expressions, intonation denotation and the noting of certain other prosodic and paralinguistic features. . An utterance function category system and an intonation form grouping system were devised and applied to the data enabling relations between utterance functions and intonation forms to be examined and allowing the mother's response to her child's intonation to be studied.

2.4 Descriptive methods of analysis.

2.4.1 Speech transcription.

The first analytical procedure was to transcribe the speech. This was done by ear. The mothers' speech was transcribed using the normal orthographic method but with no punctuation. The mothers' speech was positioned on the right hand column of a three columned lined sheet, with three lines left blank between each line used for later intonation denotation. Generally, every time there was a pause a new line was started, however the actual segmentation of the mother's utterances was imposed using a devised system when the intonation was being denoted. The mothers' speech was very clear, however, if something was said which was not intelligible it was noted that there was an utterance and, where possible, the approximate length and number of syllables were indicated. Such utterances were not used in the results analysis.

The childrens' speech was transcribed using a phonetic description from the International Phonetic Alphabet where necessary. There are difficulties associated with transcribing infant speech. Oller (1986) emphasises that the phonetic description of non-speech type noises and cries would be misleading. Oller (1980) outlines several parameters of 'speechiness' and shows that they have more or less fully developed at 12 months and, therefore, I feel that the phonetic description gives a fair representation of the childrens' vocalisations./

vocalisations. As the children became more verbal a verbal gloss was added where made possible either by context or through the mother's speech. By the later ages much of the childrens' speech was transcribed orthographically, although phonetics were used where necessary. The child's utterances were positioned in the left hand column of the transcription sheet. When the vocalising of one of the pair was followed by that of the other, this was indicated by dropping a line on the sheet and starting the second vocalising there in the appropriate column. Synchronous utterances were on the same line, with the overlapping utterances also being indicated by positioning on the same line. Sequence of utterances was thus indicated although temporal relations were marked using a separate system at the time of the intonation denotation.

2.4.2 Behaviour description.

Because of the intricacy of detail involved in communicative interaction I found it was not possible to make a decision about the functions of the vocalisations straight from the video without first making a detailed description of the behaviour accompanying and surrounding the vocalisations. In order to make decisions about, for example, attention seeking devices and their success, it was essential to have a detailed knowledge of direction of gaze for both participants in relation to the vocalisation. Similarly, it was important to know what gestures and movements could be, for example, affecting the success of a vocal directive. Such behaviours have to be studied and recorded individually in order to be sure that nothing has been missed. It was necessary therefore to devise a set of behaviour descriptions which gave adequate detail of the relevant behaviours while in no way imposing any functional interpretation upon the behaviour.

The behaviour of both mother and infant was described under the following superordinate categories:

1. general body orientation
2. gaze direction
3. movements and gestures
4. facial expression

The complete fifteen minutes of interaction was described under these superordinate categories, thereby including all the behaviour not accompanied by utterances.

General body orientation consisted mainly simply of a description of the positions of mother (M) and child (C) at the beginning of the analysis. Examples of such descriptions are

'M and C sitting on floor facing one another. C holding train in hands'.

Thereafter body position is not specifically referred to, it being possible to work out from the movement description, unless a major alteration takes place such as the mother standing up and going to the armchair and sitting down on it, or the child standing up and running out of camera shot. In these cases such actions are simply described as they happen, no particular categories being necessary.

The other superordinate categories were divided into specific categories.

Gaze direction was divided into five main categories. These were: looking at other; looking at action; and looking elsewhere. The category 'looking at object' could be contained within the category 'looking at action' if an object was involved in the action. A full description of these categories is given in Appendix I.

If it was not possible to gauge the direction of gaze as a result of one of the participants being positioned with their back to the camera, this was noted.

Movements and gestures described the actions of arms, hands, fingers, head, body and mouth of mother and child throughout the session. Not all movements of these parts of the body were noted all the time. Only movements which seemed specifically related to the ongoing activities were described. The descriptions used did not/

not include any interpretive terms such as 'offer', give' or indicate' but simply described the actions using such terms as 'reaches towards', 'lifts' and 'holding object out towards other'. A full list of movement and gesture terms is given in Appendix I. .

Facial Expression was not described in much detail because the video did not give a close picture of the participants' faces. It was useful as an additional indicator of mood of the participants however, and therefore any particularly obvious changes in facial expression were noted using the basic categories of smiling, frowning, sad. Generally the mood of the interaction was positive and interested and facial expression was not noted.

On the transcription sheet the behaviour was described using the central column. Behaviour accompanying vocalising was placed on the same line as the vocalisation as was the behaviour of the non-vocalising participant. This was also the case with synchronous or overlapping vocalisations. Where behaviours altered within an utterance this was indicated by dividing the behaviour with a line and dividing the utterance also at the appropriate point with a line. Behaviours occurring between utterances were described on the lines left free for intonation denotation between the utterances.

2.4.3 Intonation denotation and utterance segmentation.

Although eventually it was probably going to be necessary to impose some kind of 'grouping' category system upon the intonation data, I found that initially it was important to simply denote the intonation used in order to study the detail within.

How intonation is grouped or categorised depends on what is regarded as the 'domains of contrast' or potentially contrastive elements. What is viewed as a potentially contrastive element depends on how intonation is considered to be constructed.

Crystal (1969, 1975) views intonation not as a single system of contours and levels but as being made up of features of the different prosodic systems of tone (pitch movement of tone group), tonicity (placing of nucleus within the tone group), pitch range, loudness, tempo and rhythmicality.

Ladd and Cutler (1983) make a distinction between prosody being an integral part of the utterance or prosody being imposed upon the utterance. Certainly there are aspects of an intonation contour which are constrained by other features, such as word accent, but other elements, such as pitch height, can be thought of as being imposed upon the utterance. Gårding (1983), addressing the problem, suggests that the use of expansion and compression of pitch range for various pragmatic effects, is probably a universal feature of intonation.

There remain, nevertheless, various options for the categorisation of intonation groups at a functional level (see Ladd, 1983). One approach would be to try and incorporate all the accent peaks within the overall contour into a classificatory system, however such a system would probably be overcomplicated by what are not actually contrastive elements. Alternatively a system could be based upon overall contour shape of the utterance. Stern, Spieker and McKain (1982) point out the importance of looking at the <u>whole shape</u> of an utterance, or indeed a series of utterances such as

hey, hey, hey

and found significant differences in the intonation used by mothers in conversation with young infants in various contexts when the intonation was grouped using categories describing the whole shape such as 'rising', 'falling' and 'sinusoidal'. However such a method could be seriously limited by omitting too much detail which might have significance, and certainly is the type of system which would have to be imposed <u>after</u> careful examination of the data.

The third and probably most popular approach, certainly in adult-to-adult conversation is a system based on the concept of 'nuclear tone' or 'tonic', which carries the definitive group shape, basically rising, falling or level, and which by definition is the most stressed syllable in a 'tone group' which is a meaning unit corresponding to the grammatical sentence structure divisions.

Halliday (1967), O'Connor and Arnold (1973) and Crystal (1969) have created systems for grouping intonation in adult-to-adult communication based on the concept of 'tonics' and 'tone group'. Of these, Crystal's system alone provides a comprehensive description of forms of intonation contours, systematically detailing pitch range and height characteristics and other prosodic features within the intonation shape. Halliday's basic set of tones does not reflect the variety of intonation shapes which can be used and does not detail pitch range and height characteristics and O'Connor and Arnold's system, and extended versions of Halliday's basic system, are too precisely linked with specific functional and attitudial features to be generally applied.

Observation of the data in this study indicated that the ideas of 'tonic' and 'tone group' were difficult to apply to the spontaneous conversational speech of mothers and young children. A 'tone group', seen as a unit of organisation of information which can contain only one new element, is allowed only one 'tonic'. Mothers and children often had more than one 'main' stress within an utterance or meaning unit and consequently a tonic could not be easily isolated. Identification of two tonics would imply two tone groups, but where no pause or grammatical boundary existed there was difficulty in assigning a tone group boundary and therefore of recognising the intonation shape contained within it. Further, it seemed that the interpersonal function of many utterances was understood through the contributions of both 'main' stresses taken together, with word prominence indicating not only 'given' or 'new' components of information, but also such features as the 'involvement' or the attitude of the speaker, or the relevance of the utterance as a whole to what had gone before. Consequently, it did not seem possible to describe the intonation of the mothers and/

children using a system based on tone group assignment.

Brown, Currie and Kenworthy (1980) in a study of use of intonation in spontaneous adult-to-adult conversation also found they could not use to notion of 'tonic' for similar reasons. Indeed, the whole logic of assigning 'tone groups' has been criticised for being 'circular' (Lindsey 1981), and Bolinger (1970) emphasises that prosody and syntax should be kept separate in analysis as it is information and not structure that is important in communication.

I found also that I could not segment the mother's speech into utterances on the basis of grammar and this would certainly not be the case with the child's utterances. It was often the case that two 'sentences' or phrases of the mother would be said without any discernible pause between them. It is tempting to separate such speech into two utterances but to the young child listening without the benefit of grammatical analysis it cannot be assumed that it sounds other than like one intonational string, although additional factors such as behaviour or voice quality, which were noted separately, could indicate that more than one proposition was being referred to. Consequently, I segmented the mothers' utterances on the basis of pauses.

As there was no appropriate existing system for grouping the intonation data it was going to be necessary to devise one. This I felt could not be done without detailed observation of the actual intonation used and thus it was necessary to initially simply denote the intonation.

The intonation was drawn on a three line grid where the top line indicated 'high', the middle line 'medium' and the bottom line 'low'. Five pitch levels were distinguished - High, Medium High, Medium, Medium Low and Low. The pitch shape on any syllable could either be level or travel upwards or downwards. Length of syllable was not marked, although if it were abnormally long this would be indicated phonetically in the speech transcript, nor were 'most stressed' syllables indicated. The main physical correlates of stress in speech are fundamental frequency, duration and amplitude/

corresponding to the perceptions of pitch, length and loudness (Potter, Kopp and Green, 1947). Syllables perceived as stressed within synthesized speech (Fry 1958; Morton and Jassem 1965) and natural speech (Daw, 1977) have been found to be primarily indicated by movements in fundamental frequency and also tend to have greater duration relative to other syllables in the utterance and sometimes greater amplitude. I felt the combination of pitch contour and speech transcription made additional marking of 'stress' and length unnecessary. Intra-observer reliability on this denotation system is over 95%.

The segmentation of the speech into utterances, and, therefore, of the intonation into utterance shapes, was indicated by commas corresponding to pauses in the speech flow. Because I was dealing with conversational utterances it was important to denote the segmentation of the speech within an interactive framework. It was necessary to indicate the point at which the speaker stopped speaking and also to indicate the interval before the next utterance began, whether it be of the same speaker or of the partner. I devised the following system -

a. When the speaker stops speaking or pauses this is indicated by a comma after the utterance.

b. If the next utterance is by the same speaker then a 'pause' was indicated by having no mark at all before the next utterance and a 'break' (a longer time interval than a pause) was indicated by a filled-in dot before the utterance.

c. If the next utterance is by the partner then an 'immediate' start, with no pause, which would therefore have the timing of a 'reply', was indicated by no mark at all. A 'pause' which would also have the timing of a 'reply', was indicated by a comma before the utterance. A 'break' was indicated by a filled-in dot.

This system may be summarised in the following way:

Speaker stops	-	,	After utterance
Speaker restarts after a pause	-	No mark	Before utterance
Speaker restarts after a break	-	•	Before utterance
Partner starts immediately	-	No mark	Before utterance
Partner starts after a pause	-	,	Before utterance
Partner starts after a break	-	•	Before utterance

Judgements of a 'pause' or a 'break' were not based on actual timings but on impressions of interval length. A 'pause' corresponded with an interval length of between 0.5 seconds and 1.0 second, and a 'break' with an interval length of 1.0 second or more. These interval lengths have been identified by G. Brown et al (1980) as being, respectively, 'contour marking' and 'topic marking'. Slight pauses within speech were not noted as these are often simply the result of changes of place of articulation. Intra-observer reliability on this segmentation system was over 95%.

2.4.4 Voice quality description

Voice quality was not used as an utterance segmenting device as such, although it is a potential indicator of change of proposition and intention. Marwick et al (1984) found that 'voice quality' groupings, following Laver's (1980) system of description, corresponded to pause - defined segmentation of utterances in a mother to her young infant and also indicated changes in the mother's communicative intentions. Certain voice quality features of phonation type were noted. These were 'whisper', 'creaky', 'harsh', and 'falsetto'. The presence, but not the extent, of these features was noted where appropriate. Where an utterance or part of an utterance was particularly 'loud' or 'quiet' this was noted by an (L) or an (Q) after the utterance or part of utterance. Similarly if the tempo of an utterance was particularly 'fast' or 'slow',this was marked by an (F) or an (S). Voice qualifiers such as 'laughing' or 'crying' were noted as necessary.

The intonation denotation and noting of certain other prosodic and paralinguistic features completed the 'descriptive' level of analysis of the data.

CHAPTER 3

Category Systems for Utterance Functions and Intonation Forms in Mother-Child Communication, and for the Mother's Attribution of Meaning to her Child's Intonation.

3.1

Category system for utterance functions.

The functions of adult utterances are complex and varied, and the functions of mother and infant utterances are just as complex and varied but, often, even more difficult to recognise and have certainty about. In interaction with the child, the mother is not only trying to convey her own messages and feelings to the child while responding to those of the child, she is also teaching the child about the world around them and the language that is used to communicate effectively about this world. Indeed, the mother is responding to the child's evident interest in being so taught. With the preverbal and early-verbal child there are no syntactic structures to help specify the meaning of an utterance and the functions of utterances consisting of, perhaps, just one or two phonemes or one or two recognisable 'adult' words have to be worked out from other features of the utterance and the context of interaction. Prosodic and paralinguistic features, gestures and facial expressions, action sequences and the conversational framework help to specify possible utterance functions. Nevertheless, it is often difficult to verify an attributed function and, as has been shown, the role of intonation in indicating utterance functions is not agreed upon.

A study which I carried out with Dan Stern and John Dore (see Stern, 1985) emphasises just how complex mother-infant communication is. Starting out to study the nature of a mother's 'prohibitions' to her infant over the ages of 4 to 18 months, and analysing linguistic, prosodic, paralinguistic, gestural, facial, and postural behaviours, we found that it was not possible to define a 'prohibitive' linguistically, but essential to consider all the communicative channels of behaviour under study. The mother might use 'prohibitive' words, but then modify or even contradict this 'message' through the other communicative channels. On occasion, all the communicative channels would convey the same message. The infant is thus faced with having to understand a whole package of communicative behaviours simultaneously, enabling recognition of the mother's communicative intention such as a sincere or authentic 'prohibitive' as opposed to, perhaps, a 'playful tease'.

Examining Austin's (1962) distinction between 'constatives' and 'performatives', Searle (1969) demonstrated that, in fact, all utterances are 'performatives' of a kind, in that one is always acting upon another in speech even if it is only at the level of 'asserting' to another that it is a pleasant day or 'informing' another that the train is about to arrive. Searle describes speaking a language as performing 'speech acts'. In uttering a speaker is viewed to be performing up to four types of speech acts; an utterance act - producing words or sounds; a propositional act - referring and predicating; an illocutionary act, - for example, questioning, commanding, promising; and a perlocutionary act - the effect on the hearer of his recognition of the illocutionary act, such as a command resulting in the hearer carrying out an action. The 'force' of the illocutionary act such as 'comment', 'request', 'assert' reflects the force of an illocutionary verb which may or may not actually appear in the propositional content. Searle used the concept of an 'indirect' speech act to cover those incidences where the grammatical form of an utterance, or the implied illocutionary verb, was at variance to its conventional recognised force, such as 'can you tell me the time?' being not a 'question' about the hearer's abilities but a 'request' for a piece of information. Sachs and Devin (1976) found it possible to list eight different/

different functions of question forms. Searle constructed 'felicity conditions' which were contextual constraints which enabled the speaker and listener to recognise the force of each other's illocutionary acts.

The recognition by the listener of the intention within a speaker's utterance is of vital importance in the performance of an illocutionary act and indeed part of Searle's definition of performing a particular illocutionary act is that it be so recognised by the hearer. Consideration of what the hearer understands in relation to what the speaker intends by an utterance, highlights an area of difficulty in ascribing functions in the speech of mothers to children. It can be seen that to describe the functions of a mother's utterances at the level of illocutionary force such as 'commanding', 'requesting' or 'suggesting' implies the assumption by a researcher and, therefore, by the mother of an awareness in the child of such subtleties in illocutionary force. It is extremely unlikely that such an awareness could be demonstrated to exist in the child in early speech.

An alternative approach would be to describe the functions of the mother's or child's utterance in terms of the effect which they were intended to have, such as a particular action being carried out, or a particular piece of information being provided by the hearer, who would therefore have recognised the intended effect of the utterance. Such an analysis of meaning in speech is given by Grice (1957). Searle argues that not all utterance functions necessarily contain an intended effect, other than that they are understood by the hearer, giving the function of 'greeting' somebody as an example. It could be maintained, however, that the intended effect of 'greeting' somebody is to elicit a greeting in return. It is, in fact, mainly with 'response' utterances that the intended effect analysis of utterance functions comes into difficulties. The function of a 'return greeting', for example, is not so much to produce an effect but to provide an effect. This could be the case also with various 'response' utterances, such as information -providing answers to questions, and acknowledgements or agreements. Consequently, the classification of the utterance functions/

functions of mothers and children could not be only in terms of the intended effect of the utterance but would have to include categories for utterances, usually responses, which had simply to be understood.

Searle (1976) in a classification of illocutionary acts uses the idea of 'illocutionary point' to describe the 'basic things' which can be done with language such as trying to get people to do things, or expressing our feelings and attitudes, or telling people 'how things are'. Searle distinguishes five categories of illocutionary point; representatives, directives, commissives, expressives and declarations. He views the illocutionary point as being one part of the illocutionary force of an utterance, but, because it emphasises the point of the utterance, which, in some cases, would be to achieve a particular change, and, in others, would be to simply succeed in conveying a belief or feeling or attitude, it provides in itself a useful angle from which to categorise communicative functions in the speech of mothers and infants. While the notion of illocutionary point is helpful in this way, Searle's five categories are, however, too broad to adequately describe the functions of spoken discourse.

Halliday (1975) distinguishes seven language functions, or 'models' of language, which reflect the intersubjective framework within which utterances function, and which are aimed towards describing the language functions of the child as the adult. These seven functions are; instrumental, regulatory, interactional, personal, heuristic, imaginative and representational. Halliday (1978) criticises the use of the 'speech act' concept for categorising utterance functions in communication because it does not capture what he calls the 'dynamics of dialogue', reflecting a subjective rather than an intersubjective view of utterance functions. Certainly, analyses of speech acts which are tied to the grammatical form and the illocutionary verb do not readily reflect conversational functions, but a speech act approach to utterance function is limited in application only by the category constraints imposed by an investigator (cf. Edmondson, 1981).

Halliday's categories have themselves been criticised as being difficult to apply with any certainty in mother-child communication (Dore, 1979), and Barrett (1980) in his study of early pragmatic development, concluded that it would be difficult at the one word stage to unambiguously distinguish between the instrumental function - where the child wishes a particular action or service to be carried out, and the regulatory function - where the child wishes a particular person to perform some action or service, if the same word was being used for both functions.

Dore (1975), Dale (1980) and Barrett (1981) each proposed a set of functions in early child language. These systems were similar in some respects but also showed differing detail of function analysis. All three systems had categories for 'labelling' or 'naming object', for 'greeting' or 'salutation', for 'requesting information' or 'requesting an answer' and for 'requesting an action'. Dale distinguishes between a request for present or absent objects and Barrett proposes three functions related to object transfer. Dore does not isolate a request for object function. Not one of these systems reflects Halliday's distinction between an instrumental and regulatory function. Each system also contains categories found only in that system such as 'repeating' and 'practising' (Dore), 'expressing non-existence or absence of object' (Dale) and 'indication' and 'private - self guiding' (Barrett). Dore and Dale also include specific response functions of 'answering' (Dore) and 'denial/affirmation of proposition' (Dale). Although each investigator has presented a different set of functions which he found useful in analysing early child language, the functions distinguished are not incompatible, and indicate a variety of important functional distinctions for consideration in the interpretation of the utterances of the children in this study.

Detailed category systems for utterance functions have been presented for the talk of pre-school children (Wells, 1973; Wells and Ferrier, 1976) and for the talk of the caretaker to pre-school children (Schachter et al, 1976). These systems demonstrate the complexity and extent of analysis required to adequately describe communicative functions. The functions in Well's system are organised/

organised within 'sub-sequence modes' of control, expressive, representational, social, procedural, tutorial and imaginative, and reflect consideration of interpersonal function, discourse structure, conversational status and the situational context in addition to utterance content and illocutionary force. Schachter et al make an initial distinction between utterances which are spontaneous and those which are responses to the child's communication and subgroup the utterance functions within this distinction. The child's communication is taken as the entry point to the categorisation of the adult's response functions with, for example, 'responds to the child's ego - enhancing communication' containing such function categories as 'ego-boost' and 'justifies failures'.

These category systems contain many important insights into the understanding of utterance functions within communication which a system for categorising the utterance functions for both mothers and children would need to incorporate.

Dore, Gearheart and Newman (1978) and Dore (1979) present a taxonomy of conversational acts based on the criteria of grammatical form, illocutionary force, conversational status and contextual relevance. Particular conversational acts such as 'action requests' or 'agreements' or 'attention getters' are contained within general classes of conversational act - requestive, responsive and regulative, which are related to primary conversational functions - convey content and regulate conversation. This system usefully inter-relates the different levels at which utterances have meaning and was devised to describe the utterance functions of several 3 year old nursery school children and their teacher in the context of the tasks, such as painting or clearing up the room, which were being performed at the time of the utterance. The conversational acts were, however, largely defined by their grammatical form and propositional content and did not reflect the breadth of interpersonal intention which was necessary to adequately describe the data on younger children and their mothers which I was studying. In the assertive class, for example, no distinction was made between what might be called 'informative' evaluations by the speaker/

speaker of objects or events, and evaluations by the speaker of the behaviour or judgement of the other participant - what might be called 'supportive' or 'opposive' evaluations, or in Schachter et al's system, the ego-enhancing related utterances. Further, 'assertive descriptions' do not distinguish between a 'description' of object attributes as in 'the car is red' and the marking of joint success in action as in 'we did it".

In order to present a cohesive system of categorising the functions of utterances of both mother and child in interaction together, and to adequately describe the particular functions appearing in my data, I devised an utterance function category system for mother and child from the communication which I was observing.

It was useful to focus on the different areas of information which could contribute to the understanding of the illocutionary point, or communicative function, of an utterance in interaction. These were;

1. grammatical form
2. propositional content
3. interpersonal emotion
4. prosodic and paralinguistic features
5. pragmatic situation
6. discourse status
7. gestural, facial and proxemic behaviours

I use the term 'pragmatic situation' to cover various aspects of the situational context in which the utterance is spoken, such as the shared experience of the participants, of which the observer would not necessarily be aware, or where the mother is trying to distract the child from a certain course of behaviour but without making this obvious to the child. The mother might say 'oh look what I've found' which is functioning to engage and focus the child's attention but is also, in terms of the pragmatic situation, functioning to distract the child from the previous behavioural focus.

Work on conversational analysis (e.g. Sinclair and Coulthard 1975) has emphasised the importance of the discourse status of an utterance - such as whether it initiates an exchange, or a topic within an exchange, or if it is an answer to a question.

Gestural, facial and proxemic behaviours which accompany or precede an utterance, as mentioned before, can modify, support, or contradict the 'apparent' meaning of an utterance and are essential in recognizing the actual function.

3.1.1 Function category system for the mother's utterances.

I created the category system for the mother first, assuming at this point that the one for the child would by necessity be different although similar and compatible, especially, as some of the children would have developed much adult-like communicative speech at the end of the period for which they were under study.

Grammatical form and propositional content did not need to be specifically marked when assigning function however I felt that it was possible that they could play some decisive role in intonation contrasts and so I did not want to risk losing the detail at this stage. Consequently I devised a system for classifying the grammatical form and propositional content of an utterance which would be noted on the analysis sheet in addition to its function category. This system is presented in Appendix II. Within the propositional content classification I include some descriptions which in other systems are isolated out as functions in themselves such as 'transfer of object' often classed as 'offer' object or 'ask for' object. As will be seen in the actual 'function' categories I have deliberately avoided using terms like 'offer', 'suggest' and so on as I feel they imply am element of understanding on the part of the child which we cannot assume, and also because being illocutionary force terms they are, in fact, only two of a very large number which should be used in a consistent system. I felt it made for much cleaner data if such details were contained under wider function categories of, for example 'directive', (where the mother is basically trying to get the child to carry out a particular/

particular action on the object, as will be described in the category system) from which they could be easily retrieved if they showed signes of being intonationally interesting.

In creating the 'function' categories I found that the most useful question to ask regarding each utterance was, 'what did the mother want the child to do or understand as a result of her utterance?' There seemed at the outset to be four major areas of intention to be considered.

1. Seeking the child's attention
2. Directing the child's actions
3. Informing the child
4. Questioning the child

It seemed that the mother spent some time trying to get the child to attend to her or some action that she was doing or some object that she was holding. However, the whole category area of 'attention' proved to be somewhat difficult to limit and define.

The word 'attention' has the connotation of 'eye-contact' but it was obvious that this could not serve as a basis of judgment of overall attention. The difficulty was how to decide when the child was attending to the mother and when the child was not. If the child did not look at the mother for some time, being perhaps engrossed in acting upon an object, it was tempting to decide that the child was no longer attending to the mother but in such instances it was often the case that the child would complete the action and look triumphantly at the mother suggesting that the child not only knew the mother had been watching but that the child was in fact performing for the mother. For her part the mother often carried on a one-sided 'conversation' with the child, making observations and evaluative comments about the objects and activity as if they were in fact in joint activity.

Similarly in such a situation the child might follow an instruction from the mother without either looking at the mother or otherwise interrupting the action, indicating again that the child was attending to the mother even when it might appear otherwise. Joint eye-contact, or looking at the other, and communicative responses to the other might be the only clear examples of attending to the other but it seemed that in the type of interactive play which I was observing the mother and child were probably attending to one another virtually all of the time. Similarly it could be argued that nearly all of the mother's utterances could contain an attention maintaining element within their function. Consequently 'attention' was a difficult concept to categorise. There did seem however to be one aspect of attention which could be categorised and that was when one partner was deliberately seeking to alter the focus of attention of the other. I isolated 4 such situations and created the following categories:

1. Attention Focus

where the child is casting around for an object to play with, possibly rummaging through the toy box, or briefly attending to various objects. The mother may refer to an object for attention or may wish the child to attend to her.

2. Seek New Attention Focus

for both the mother and child, usually from an object of joint attention. An overt attempt to find or substitute a new focus of joint attention. After a period of joint play the mother may say

'lets play with something else now'
or
'what else is in this toy box?'

3. Seek to Distract

where the mother wishes to covertly refocus the child's attention, such as when the child is showing an interest in exploring the microphones and the mother without overtly making the objects the focus of joint attention, attempts to distract the child by highlighting some other object for attention. Thus she may say

'oh what's this here?'

or 'look what I've found'

4. Seek to Re-establish Focus

where the child has altered his focus of attention from an object or game of joint attention and the mother wishes to re-establish this focus for the child. Such a situation could arise when the mother seemed to wish to particularly teach or demonstrate to the child the attributes of certain objects such as the stacking cups or the shape sorting box or wished the child to persevere in completing a task of this sort, and would thus, when the child's attention moved to some alternative focus, seek to refocus the child's attention on the earlier object.

Within these 'attention' categories mothers often used straightforward 'attention getting' phrases such as the child's name, or a word like 'look' but they also used various other attention getting devices like, 'what's this', 'or 'what's in here, which while being attention getting devices given the appropriate context, were undeniably also 'questions', and which were more than just attention getting phrases because they specified a focus of interest for the child and could be appropriately answered. What additional function any particular utterance might have depended largely on the age of the child and the expectations of the mother of the child's linguistic ability. If a mother expected her child to/

to be able to answer familiar 'what's that?' questions, then such an utterance could function as a didactic question as well as seeking attention, in the appropriate context, in so far as the child could answer and the mother was specifying a particular focus of interest. If, however, the child was not expected to be able to answer such didactic questions then such an utterance would have a purely attention seeking function. How the mother's expectation could be gauged, depended entirely upon the performance of the child and, consequently, it could occur that it was not possible to be sure whether a particular utterance served both of the two possible functions.

In this way it was clear that although the 'attention' categories were almost 'directive' in so far as the mother wished the child to alter his focus of attention, such a category type was nonetheless different, in so far as a straightforward 'directive' has only one function - whereas an utterance which may have an attention altering or focussing function may, in addition, be functioning as a 'question' or 'comment', or directive. In the analysis system an attention focussing function was noted in addition to any other function which the utterance was considered to be serving. If it was considered that the attention function was the only function of the utterance then this was the only function noted. The attention categories could therefore co-occur with other categories.

Another 'attention' category within joint activity was where the mother wished the child to focus on the mother's activity often prior to a demonstration by the mother of some aspect of the activity usually by saying something like 'look' or 'see'. This function was called:

5. Pinpoint Attention Focus

There were times when the primary function of the mother's utterance seemed simply to maintain and heighten interest in an object of joint attention. As mentioned before, there was probably an element of seeking to maintain engagement and interest in a large majority of the mother's utterances however this 'secondary' function of many utterances/

utterances can be, I feel, distinguished from where the mother's utterance has no function other than maintaining or heightening the child's interest. This was particularly the case with the younger children where an utterance like 'what's this' was expressive rather than questioning. This function was called:

6. Maintain/Heighten Interest

The 'directive' functions all related to where the mother was trying to get the child to carry out either a specific action or course of action or behaviour, usually on an object, or where the mother wished the child to stop doing a specific action or course of action or behaviour. The first directive category was

7. Positive Directive

This is where the function of the mother's utterance is to get the child to perform an action or course of action which the child was not apparently intending to do anyway.

Typically this involved acting upon an object but also included under this category was where the mother wanted a specific verbal response from the child in the form of repeating a modelled verbal form by the mother exemplified by such utterances as

'can you say bricks'
or 'you say it'

Also included were directives pertaining to body positionings such as

'come over here'
and to control over the manner in which actions were to be performed
'gently'
'be careful'

The specific content differences were noted in the propositional content.

A further inclusion in this category was that of the directive 'marker'. Such an utterance was typically of the form

'come on'

which function to repeat the directive message of a previous utterance.

The Positive Directive contrasted with the

8. Prohibitive Directive

which applied where the mother was overtly wishing the child to stop an action or course of action, or behaviour or not do an apparently intended action. Originally the concept of 'reversing' an action was also included in this definition to cover, for example, the situation where the child went out of camera shot and the mother then said something like

'come back here'

in order to bring the child back into camera shot. The limits of such logic however were difficult to place and as such, unless the mother overtly prohibited such behaviour by including a negative form in her utterance, the function was considered to be 'positive directive' with the underlying desire to cause the child to 'reverse' his behaviour being noted as pragmatic context.

The prohibitive directive contained the prohibitive counterparts to the positive directives in all its varieties.

It is within the area of 'directives' in general that many illocutionary force terms tend to be used such as 'suggest', 'command', 'request', 'dissuade' and so on. As mentioned before I decided not to use such potentially confusing labels primarily because they imply a level of understanding in the child which we cannot assume. Thus these two categories covered the whole area of 'directives'. The 'directive' categories were generally easy to recognise but there were certain situations, discussed below, where it was not always easy to decide whether a particular utterance was a directive or a 'question' or 'comment' of some kind.

There were two main 'question' categories

9. Didactic Question

10. Information Seeking Question

The 'Didactic Question' function applied where the mother expected an answer from the child in either verbal, gestural or behavioural form, in situations where the mother already knows the answer and is effectively training the child. Typical examples of this function occur in situations where the mother and child are looking at a book together or exploring a toy together. The mother may say something like -

'and what colour are these wheels?'

or 'what's this a picture of?'

The 'Information Seeking Question' applied where the mother expected an answer from the child in verbal, gestural or behavioural form, in situations where the mother does not already 'know' the answer. Examples of actual wordings of such utterances are

'what are you going to draw?'

or 'what colour shall we use?'

Occasionally it was not immediately clear whether a particular utterance was a Positive Directive or an Information Question such as where the mother and child are jointly focussing on a box of bricks and the mother says

'do you want to tip them all out?'

Given that the mother or child is not already in the process of doing the action, it could be that she is asking about the child's desires regarding the activity or she could actually be trying to get the child to carry out the action. The latter was certainly the most straightforward interpretation but, particularly with the older children, the former had to be considered.

Included in each of the 'question' categories was the 'Question Repeat' marker. This was where the mother having asked a question of the child but having received no answer, 'repeated' her question function, but not the actual content, by saying 'im?'

Theoretically one could also divide information - conveying utterances of the mother's, which I call 'comments' into those which are didactic and those which are actually informative. However, in order to recognise these different comment functions it would be necessary to have a detailed awareness of the child's knowledge. This was simply not accessible within this study and so these two aspects of communication about objects, events, persons, and feelings were joined in one function category:

11. Information Comment

The function category applied in situations where the mother was seeking to 'inform' the child and included evaluative comments of the mother about objects such as

'oh, this is nice'

There were also occasions where it was difficult to decide whether an utterance was a Positive Directive or an Information Comment. A particularly good example of this is where the mother and child are jointly focussing on the shape sorting box with the child apparently trying to get the wooden blocks successfully through the holes on the top of the box. The mother, often gesturing to the box at the same time, might make various utterances like

'yellow one in here'
or 'in the square shape'

The extent to which the mother is actually 'informing' the child of the appropriate procedure or the extent to which she is trying to 'direct' specific actions is often difficult to decide. Certainly it can be seen that the child is generally intending to put the shapes through the holes anyway and thus it could be argued that the mother's utterances cannot be Positive Directives except where very specific actions are involved, however, it was nevertheless possible that the mother was attempting to continuously influence the child's choice of action through a mixture of what were to the child verbal and gestural directives. One could only keep asking at each utterance whether the mother wished to inform the child or get the child to do a particular action. Perhaps in this case she was trying to do both, or either. A decision was always made, however, of one or the other and the propositional content classification of 'procedural' allowed for later comparison of such 'comments' or 'directives'.

In addition to these major function categories, several further categories of utterance function were identified. These additional categories are mostly related to specific reactions or responses of the mother to the child within this interactive situation.

Where the directives, comments and questions have scope for variation in form, content, affect and pragmatic context, this was typically much less the case in the rest of the function categories where these considerations, as will be seen, are to a large extent already 'built in'.

These categories are

12. Supporting child

a positive judgement of the child's behaviour, eg. 'good', 'that's clever', 'that's nice' including where the mother approves the child's compliance with a directive of the mother saying, for example, 'that's it'

13. Opposing the child

a negative judgement of the child's behaviour, 'that was silly'

14. Mocking child

a gentle mock when child is being silly or amusing or failing to perform an action correctly eg. 'oh, very clever', 'I don't know'

15. Success marker

where mother or child or mother and child together have carried out a particular action on an object successfully eg. 'there', 'that's it'

16. Unsuccess marker

where mother, child, or mother and child have failed to carry out a particular object operation they had been attempting 'well that didn't work', 'no'

17. Encouraging child's intended action

where the child is in the process of carrying out an action possibly within joint action which M is encouraging eg. 'try' 'nearly' 'that's almost it'

Correcting child - an area of utterance function where the mother uses a corrective utterance regarding an action or utterance content of the child. Such utterances could take various forms:

18. Corrective

'no' (that is not correct - understood)

19. Corrective comment

'(no) not in that hole'

20. Corrective information comment

'it's not a dog, it's a cat' or simply 'it's a cat', used contrastively.

21. Corrective prompt

where the mother having asked a 'didactic' question which the child has answered incorrectly then prompts the correct answer by, for example, saying the initial phoneme, and thereby indicates that the previous answer was incorrect.

Affirming child - affirming an action or choice or utterance content of the child where the message 'that is correct' is appropriate,either spontaneously or in response to an utterance of the child. Such utterances could take various forms.

22. Affirmative

eg.' yes', 'uhuh', 'no' (that is correct - understood)

23 Affirmative repeat

where the mother repeats the actual content of the child's utterance or part of the utterance to indicate that it is correct.

24. Affirmative comment

eg.'(yes) it's a cat'

25. Didactic Model

an affirmative and corrective 'repeat' where mother 'repeats' the content of the child's utterance or part of the utterance but 'corrects' the phonemic realisation.

26. Prompting child

where the mother, having asked the child a didactic question, prompts the answer by providing the framework for the answer, often including the initial phoneme. A corrective element is not implied in this case.

27. Appropriateness repeat

where the mother repeats an utterance of the child to affirm the appropriateness of the child's utterance in the context.

28. Agreeing with child

where the mother is communicating 'yes, I go along with you' to the child, either as an answer to an explicit 'agreement seek' of the child, or as a response indicating acceptance of an object identification or judgement of the child the actual nature of which the mother does not already 'know', or as a response accepting an 'idea' for action from the child.

29. Expressive reaction

where mother reacts to an action or object of the child or herself with an expression of, for example, delight or wonder. 'ooh' 'oh'

30. Clarification Seek

where the mother is not sure of what the child has said and wishes the child to repeat or clarify. eg. 'what are you trying to say?' 'pardon?'

31. Checking message of the child

where the mother offers a possible interpretation of the child's utterance for the child to agree or disagree with.

32. Explaining/justifying child's experience

where mother seeing child for example in difficulty trying to lift a heavy box will try to explain the experience to the child 'ooh, its a heavy one'

33. Challenging the child's judgement

where the mother challenges the accuracy of the child's judgement in, for example, the identification of an object, or noise, or interpretation of a drawing.

34. Challenging the child's logic

a response by the mother to an utterance of the child where the mother knows <u>what</u> the child has said but does not know <u>why</u> the child has said it.

35. Challenging the child's intended or desired activity

where the mother challenges the 'desirability' of an activity, often a repeat activity, in which the child wishes to engage.

36. Acknowledge utterance of child

where the mother responds to a gesture or utterance of the child, with a simple acknowledgement such as 'mm' or 'uhuh', in the sense of 'yes, I see what you are doing' or 'yes I see what you are interested in. In this way the 'Acknowledgement' differed from the 'Affirmative'.

37. Acknowledge question

where the mother repeats the child's question, or part of it, or uses a response such as 'mm' or 'em' as a delaying device to indicate that the question has been understood but the answer is still being thought about, or not known at that point.

38. Dialogue device

where the mother responds to an information comment of the child by turning that comment into a question. Thus the child could say referring to a toy 'that's like Daddy's saw' to which the mother responds 'is it like Daddy's saw?'

Such a response is clearly not an 'Information Question' where the mother is actually seeking information nor is it 'didactic' because the child has already provided the concept, nor, in context, is the mother actually 'challenging the child's judgement'. It seems that the function of the response is to maintain and promote dialogue but, at the same time, without conveying any additional information from the mother.

39. 'Allowing' an answer

where the mother 'allows' or 'accepts' and incorrect answer from the child, indicating in utterance content that is not quite correct.

40. Play/Games

utterances within games include ritual games, counting games and listing games eg. 'here it comes, here it comes', 'woooo', 'ready, steady, go'. This also includes where the mother provides noises that objects make.

Sometimes the mother would react with a 'play expressive' when for example the child knocked a tower of bricks over, such as 'oh no', or might pretend not to want the child to do such an action in play, 'oh, you mustn't' 'no! no!'. In such cases the utterance would be categorised 'play' with the 'pretend' function, eg. 'prohibitive', added.

41. Interpreting child's reaction

mother interprets a reaction of the child to an object in a verbal form. When for example the mother gives an object to the child which the child immediately throws away the mother might say. 'oh, you don't want it'

42. Explaining child's expressiveness

mother explains why the child is, for example, excited 'you remember this don't you'

43. Providing reaction for child/Stumble marker

mother provides a verbal reaction to the behaviour of the child such as when the child stumbles or falls over or drops something, or to any accidental event. 'oopsie'

44. Observational comment on child's activity

mother is observing the child's activity and providing a verbal accompaniment, 'oh that one's to go up there is it?', 'that one is going to sit inside is it?'

45. Mirroring the child's expressiveness

a sympathetic mirroring of the child's expressiveness through repetition of utterance content.

46. Imposition softener

Mothers occasionally would simply take an object from the child in order to carry out some action and, while actually carrying out the action, at the same time accompany this with a pseudo permission question or desire question such as, 'shall we get them all out'. The purpose of these utterances seemed mainly to explain the mother's imposing action, and lessen the force of the coercion.

47. Seeking agreement

where the mother wished the child to agree with her 'that's not going to fit, is it?'

48. Indicate compliance

where the mother indicates she will do as the child desires, eg. 'okay', 'alright'

49. Refuse to comply

where the mother overtly refuses to comply with the wishes of the other.

50. Thanking child

where mother 'thanks' the child.

51. Didactic commentary

where mother describes an action, typically using an imperative form, which the child is already in the process of doing or has actually just completed. Mother appears to be providing the words which go along with the child's actions for teaching purposes.

The Didactic Commentary contains an important element of affirming the 'appropriateness' of the child's behaviour and as such complements the Appropriateness Repeat which relates to the child's utterance.

52. Comfort/care

where the function of the mother's utterance is make the child feel better or help the child recover from a stumble, often accompanied by physical assistance, 'up you get'

53. Readiness marker

mothers may set-up an object for the child to act upon and indicate verbally that it is now ready for action, - eg. 'right', 'okay', 'there you go'

54. Action prompt

where mother indicates that she is about to start on an action sequence or wishes the child to start, or join her in, an action sequence, where object is already ready, - eg. 'come on', 'go on then'

55. Completeness marker

where mother indicates that she has completed a particular set of actions, - eg. 'right,' 'okay'

Apart from the attention categories which can co-occur with other categories, the categories are mutually exclusive. The extensive detail of the categories reduces potential ambiguity.

Because the mother's utterances were segmented on the basis of pausing, it was possible for one intonation shape to contain more than one 'functional unit' or functional intention. For example, the mother might say

'that's a nice ball roll it to Mummy'

which consists of an 'Information Comment' followed by a 'Directive'. Such utterances were called 'compound utterances' and the two, or more, separate functions noted in conjunction.

Endearments, or the child's name following an utterance, such as

'put it in the box darling'

were not considered to be acting as separate functional units. Where the child's name initiated an utterance such as

'Jack come over here'

it was considered that the child's name was serving a separate function such as 'Attention Focus' or 'Directive' (marker), or 'Opposive'.

Similarly, an utterance containing conjunctive elements such as

'well put it in then'

was considered to have a single 'Directive' function where an utterance like

'oh that's nice'

was categorised as an 'Expressive Reaction' followed by an 'Information Comment'.

A tag question on the end of an utterance such as

'that's nice isn't it'

could in certain cases be thought of as serving a separate 'Agreement seek' function, but generally was considered to be stylistic, especially in the younger sessions and where the utterance content was evaluative, and as such did not constitute a separate function. Occasionally there were clear didactic situations were the tag was considered to be functioning as an 'Agreement seek' such as the mother saying

'this is the blue one isn't it'

'Interpersonal emotion' was marked in addition to the 'function' category where necessary. 'Expressive' function categories needed the emotion specified, but generally the interpersonal emotion of both mother and child was positive ranging to serious. Where it was necessary to note departures from the general disposition, one of the following emotion labels was used:

delight, mock disgust, surprise, sad, exasperated, annoyed.

Use is made of all aspects of the pragmatic environment of the utterance in deciding on its function, including non-segmental features such as intonation itself. A certain circularity of analysis may seem possible here in so far as I might be thought to be projecting certain adult classifications upon the data, which I would then discover to exist. This is not the case, however, for the following reasons. As outlined before, there are no simple rules in adult intonation use anyway, with context being of prime importance in addition to the words themselves. Therefore, I would not/

not be applying any preconceived ideas about categorising for example, rising and falling end shapes. I would simply be responding to the mother's intonation within context as another communicative adult. There are so many contextual variants, and differences in content and length of the utterances, and so many different functions, and also so many domains of intonational contrast apart from rising and falling end shapes, that I simply could not predict beforehand any particular intonation groupings which the mother may use. My only assumption was that the mother would use intonation in a way which I as an adult could recognise and respond to, which, in other words, was compatible with adult communication, and not in a way which was actually a completely different system from adult communication and only for communication with the child.

3.1.2 Function category system for the child's utterances.

In considering the functions of the child's utterances, I could not assume that the intonation of the child was being used consistently in any way at any point, this being part of what I was proposing to study, and as such, I deliberately had to omit the intonation from the factors upon which I could base a decision as to the function of the child's utterances. Similarly, I could not use the mother's response to help in this decision as she may have been responding to the child's intonation.

The factors upon which a decision as to the function of the child's utterances were based were the propositional content, grammatical form, accompanying behaviour, facial expressions and gestures, and pragmatic context . Even where some of these factors were perfectly clear it was not always possible to make a functional decision.

For example, if the mother asks her one or two word stage child

'whats that?'

and the child says, within 'reply' time, the correct answer,

'spanner'

it is tempting to think of this as a declarative answer, which in my function system would merit the classification of Answer, Information Comment. However, it is, in fact, only the intonation which gives the impression of a 'declarative' utterance. Given that the intonation can not be used, there is no linguistic basis at all for deciding between 'declarative' or 'interrogative' meanings or indeed any other type of function. As such the child's utterance at this point can only be described in terms of discourse status, propositional content and pragmatic context respectively, as -

'Possible Answer, object identity label, correct'.

The missing element in this case was grammatical form, and thus an extended propositional content, -

eg 'I think it is a spanner'
or 'that is a spanner'

Not only would it be necessary in this situation for the child to have advanced linguistic skills in order that I could categorise his utterance with certainty, but he would also have to employ these skills in a manner quite unnecessary in normal adult to adult communication by making explicit a proposition which is often deleted in such a context. It was necessary, however, to apply such restrictions in attributing a clear utterance function to the child.

Certain combinations of propositional content, actions and pragmatic context could help in eliminating certain function possibilities. If for example, the child's utterance contains a description of an action such as

'put this in here'

in which the child himself is already engaged, then this effectively eliminates either a 'questioning' function or a 'directive' in respect of wishing the mother to do the action. It is not possible to say, however, that the child is clearly 'commenting' on his own action intentions such as in

'now I am going to put this in here'

because the possibility remains that the child's communicative intention was more like

'now watch me put this one in'

the function being to direct and focus the mother's attention.

Even explicit grammatical form and content such as

'shall we take it out'

has to be very carefully considered against its context as the child may, like the mother, be using an 'indirect' form of speech to serve a particular function, such as a question form functioning as an Information Comment. The child's functions could be further confabulated by his using, in a ritualistic manner, a form or utterance habitually used by the mother in a particular context, but which for the child is serving a different function altogether, following from Van der Geest's observations as discussed in chapter 1.

It can be seen, then, that categorisation of the child's utterances depended on very particular combinations of grammatical form, propositional content, actions, gestures and pragmatic context. Despite these restrictions it became increasingly possible, as the child developed, to pinpoint clear utterance functions and, as such, I found that the function category system devised for the mother was potentially suitable for categorising the child's utterances except that the child was unlikely to use such a breadth of functions, and, particularly with the younger children, it was often impossible to decide/

decide on a function category at this level. In addition, certain categories which implied an awareness of the stock of knowledge of the speaker could not be applied to the child's utterances. On occasion, I could at most describe the accompanying non-verbal behaviour such as 'picking up object',and the pragmatic context with a view to comparing the utterances along these lines. With the older children, however, the function category system became more applicable, although many utterances could still only be compared in respect of their propositional content, grammatical form, accompanying behaviour and pragmatic context.

One additional category was included in the function category system for the child. This addition was

56. Model repeat

where the child repeats a 'didactic model' of the mother, or an utterance or part of an utterance of the mother as if using it as a 'model'.

It can be seen that eventually, as the child develops linguistically, an ambiguity could arise between whether the child's repeat of the mother's utterance was a simple 'model repeat' or was in fact an 'affirmative repeat' with the meaning of

'yes, you are correct'

As the latter category requires an insight into the child's knowledge it is difficult to apply to the child. Even in the session with the 28 month old child it was clear that most repeats were 'model repeats' and as such the one or two potentially functionally ambiguous repeats were also classed as 'model repeats'.

A further complication in categorising the child's utterances was that it was virtually impossible to decide with certainty that a particular utterance was <u>not</u> intended to be communicative. Following the discussion above concerning difficulties in deciding upon/

upon attention to the other, the child's intention to communicate was subject to the same logic. It could not be assumed that an utterance of the child made, for example, when the child was busy exploring an object, was nevertheless, not intended to communicate something to the mother. As such, all of the child's utterances were included in the analysis.

My method of approaching the interpretation of the function of the child's utterances was to categorise at the level, however low, within my system, at which I could have certainty, noting as much detail as possible about discourse status, propositional content, pragmatic context and accompanying behaviour. Because of the detail contained within the analysis system, including the response of the mother, I felt that particular functional associations of, for example, action and word, or word and context, would not be lost, even if they had not been recognised at the outset, in the same way that any intonational functions would be 'discovered' and not assumed.

The function category system, plus the various other classificatory and denotation systems outlined above, provided information about the utterances which were organised on two analysis sheets. The first analysis sheet contained the speech transcription, behaviour description, intonation denotation, timing relations, and certain prosodic and voice quality descriptions. The utterances were also numbered on this sheet. The second analysis sheet related primarily to the 'function' of the utterance, but also contained additional, possibly important, information. This sheet contained five columns. The first column was simply to note the number of the utterance for identification. The second column headed 'who' noted the person who had spoken - mother (M) or child (C). The 'what' column contained the actual function category. In this column was also noted accompanying gestures, interpersonal emotion and pragmatic context and whether the utterance was, or could by timing be an 'answer'. Additional discourse features of an utterance being a 'repetition', an 'imitation' or a 'self-correction' were also noted if appropriate. The 'how' column contained the 'grammatical form' and 'propositional/

'propositional content' classifications. The child's utterances under this column if not content clear were described in terms of the phonemic content, vowel (V) and consonant (C).The 'result' column noted the success of directives and questions and attempts at manipulating attention. This was noted as positive (+VE) or negative (-VE) or, in the case of questions, as whether or not the partner answered, or may have answered, in response. If a particular emotion was evoked as a result of an utterance by the other, this was noted.

3.2 - Category system for the mother's attribution of meaning to the intonation of the child.

On approaching the mother's attribution of function to an utterance of the child's, and, therefore, possibly to his intonation use, the initial problem was how to find a way of actually pinpointing what her attribution, if any, was. There was only her utterances and behaviour to use as clues to her attribution and, when these came to be analysed in detail in respect of possible attribution of meaning a fair amount of ambiguity came to light.

Excluding, for the moment, utterances of the child which were functionally clear anyway, I made an initial distinction between those 'non-clear' utterances which were not followed by an utterance of the mother within the 'reply' time (as discussed in Chapter 2) and those which were. I then analysed those utterances of the mother following an utterance of the child within 'reply' time for clues to attribution of function to the child's utterance by the mother.

This turned out to be a rather fruitless search. Either the mothers were being most skillful at not committing themselves to any particular attribution, or it is a fact about conversational communication, that given only one set of utterances one can generally only speculate about the functions of the partner's utterances. An Information Comment of the mother's could, for example, quite appropriately follow a Directive, Question, Comment or/

or Expressive Reaction from the child. Similarly, a Didactic or Information Question could follow a Comment or Expressive Reaction or a Directive to focus attention, or possibly even counter a Question from the child.

Even utterances which were clearly 'tied' to the child's utterance, containing perhaps an Affirmative or Corrective, did not necessarily indicate a function for the child's utterance unambiguously.

For example

'yes, it is a teddy'

could suggest either a 'comment' attribution in the sense of 'yes, so it is', or a 'question' attribution in the sense of 'yes, you're not wrong'.

'no, its a rabbit'

could equally be the result of a 'comment' attribution or a 'question' attribution in both cases correcting the content of the child's utterance and providing the required identity label.

Mother's behaviour was similarly uninformative. For example, if the mother reached and picked up an object at which the child had been looking or even pointing, while uttering, it was still not certain that she had taken the child's utterance as a 'directive' - the mother may simply have been extending the child's obvious interest in the object by bringing the object to the child.

In fact, only some very specific arrangements of propositional content in the mother's utterance allowed a specific function attribution to be recognised. Thus

'it's not a teddy, it's a dog'

and 'I don't know, I think its a doggie'

clearly attribute a 'comment' and 'question' respectively.

Obviously such a content dependent category system was somewhat limited both in scope and interpretive value, however it was possible to divide the mothers' utterances and attribution of function to utterances of the child, which were not functionally clear anyway, in the following manner.

1. No utterance - where the child's utterance was not followed by an utterance of the mother within 'reply' time.

2. Non-overt - where the child's utterance was followed by one from the mother, within 'reply' time, the content of which did not unambiguously indicate a particular attribution of function to the child's utterance.

3. Overt attribution - where the child's utterance was followed by one from the mother, within 'reply' time the content of which unambiguously indicated a particular attribution of function to the child's utterance.

As it stood, the system, although providing a means of organising the mother's utterances in respect of the child's , provided very few insights into what the mother made of the child's intonation and how this could be affecting her response to the child. In the 'no utterance' and 'non overt' sections it was not even possible to address the issue of whether the mother was attributing any function at all to the child's utterance.

There was a particular situation which effectively barred the child's utterance from being included in any of the other categories and this was where the mother's utterance clearly related to some intervening event occurring after the child's utterance, such as the child stumbling or dropping something or making a squeaking noise with one of the squeaky toys. A fourth category division could thus be added.

4. Intervening Event - where the mother's utterance, although within 'reply' time to the child's, is clearly related to an event occurring between the two utterances

From the child's point of view the important thing about the mother's response to his utterance was presumably not whether it contained an explicit indicator of what may have been the function of his utterance, but what information it provided him with, or what the mother wished him to do, or indeed what the mother herself did. It seemed that the best way to supplement the existing 'attribution' system to make it more revealing was to include in it the actual detail of the mother's utterance, if there was one, and her behaviour. In this way anything systematic about the mother's response in terms of its function or content in relation to the child's utterances and thus the intonation, could be observed, possibly allowing underlying attribution trends to be extrapolated and areas of influence over the child's subsequent use of intonation to be highlighted.

Thus the problem of discovering the functions that the mother may be attributing to the child's intonation was approached by, firstly, organising the utterances of the child in relation to the response of the mother, in terms of whether or not the mother uttered within 'reply time' and, if so, whether an attribution was overt within that utterance, and, secondly, by noting in detail the function and content of utterances of the mother following within 'reply' time utterances of the child. Details of accompanying behaviour of both child and mother were also included in addition to the details of the child's utterance. This information was then able to be related systematically to the child's intonation.

Where the function of the child's utterance was clear anyway (with intonation not being used as an indicator of the function, as discussed in the previous section) one could not sensibly question what the mother's attribution was. In such cases of Function Clear utterances, however, the mother's response was still noted in detail and set against both the details of the child's utterance and the behaviour of both partners.

Thus it was possible to analyse this network of information about utterances, responses and behaviour for systematic types of response from the mother to the child's intonation alone.

It should be noted that the word 'response' in this category system is used descriptively to apply to any utterance of the mother following within 'reply' time any utterance of the child.

3.3 The intonation form grouping system.

There remained one final system to be devised before all the classificatory and category systems could be inter-related and results extracted and this was a system by which the intonation shapes could be coherently grouped.

As discussed in Chapter 2, there was no existing intonation grouping system which could cover the data in hand, with Crystal's detailed and comprehensive system of intonation description (Crystal, 1969) using the concepts of 'tone group' and 'tonic', which have been found to be unworkable with this spontaneous conversational data of mothers and their young children. The 'whole shape' approach of Stern and his colleagues seemed both likely to generalise over potentially important range and height details and would not be able to cover the variety of intonation shapes used by mothers of children in their second and third years.

An intonation grouping system for this data would need to incorporate detailed information about pitch excursions in terms of height and range features, along with details about the intonation shape before and after the pitch excursions, and possibly also note the overall shape. At the same time, although this breadth of detail had to be somehow covered, the whole purpose of a grouping system was to reduce the amount of detail to be handled in order to make the data comparable.

Working with an initial distinction on 'tail' shape (the end of the intonation shape) of falling or rising, and the nature of the pitch excursion or excursions within the overall intonation shape, I came up with five initial groupings. These were, with examples of typical forms,

1. Simple Fall/Simple Rise

2. Jump Fall/Jump Rise

3. Slope Falling/Slope Rising

4. Undulating Falling/
   Undulating Rising

5. Level

Thus it can be seen that where a Simple Fall or a Simple Rise does just that in overall shape, in a Jump Fall the overall shape has to jump up before it can fall and in a Jump Rise it has to jump down before it can rise.

The Falling or Rising Slope again does just that although it has to travel through more than two levels of pitch. Indeed, at this stage it looks just like an extended Simple Fall or Simple Rise. Later additions to the system, however, made it useful to keep these as two separate categories. The Undulating Fall or Rise distinguished those intonation shapes which had at least two separate pitch excursions. In an undulating shape it is not even always possible to distinguish the direction of the pitch excursions because the pitch excursions sometimes follow directly on from one another with, for example, a jump down in order to rise turning into a jump up in order to fall. The tail direction however can be described.

As can be seen, I decided not to distinguish between 'steps' and 'glides' within any particular falling or rising shape because it seemed from the data that the main cause of a stepping or gliding movement was syllable number, with syllables gliding or stepping within intonation shapes depending on their number within a word.

The next element to be worked into the system was pitch range - how large was the fall or rise?; how large was the jump up or down?

The system of intonation denotation was described in the previous chapter. Pitch Levels within this system are denoted in relation to a 5 level grid thus

High

Medium High

Medium

Medium Low

Low

If the range over which a glide moved, or which distinguished any two subsequent pitch levels which were being highlighted within the system, was equivalent or less than the range of one jump in denotation level, such as Medium to Medium High, it was termed 'moderate'; if it was equivalent to the range of two jumps in denotation level, such as Medium Low to Medium High, this range was termed 'large'; if it were equivalent to a range greater than two denotation level jumps, such as from Low to Medium High, it was termed 'marked'.

In this way, the range of a jump or a rise or fall in pitch could be moderate, large, or marked.

At this stage the grouping system was revised to incorporate into its classificatory divisions, where appropriate, the range characteristics immediately preceding the falling or rising tail, to give the following system, with examples of typical forms,

1. Simple Fall/
   Simple Rise
   No difference in range between the fall or rise and the preceding syllable (if any)

2. Moderate Jump Fall/Moderate Jump Rise
where the jump before the fall or rise is through a moderate range

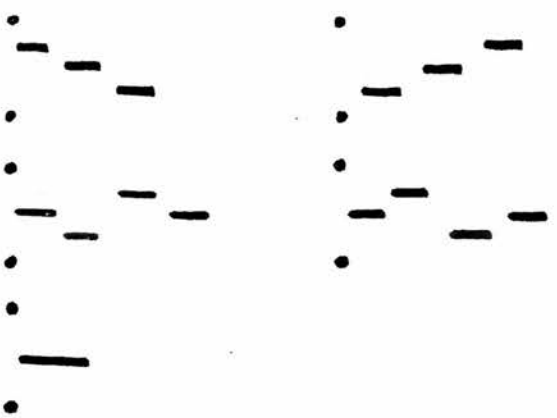
3. Large Jump Fall/ Large Jump Rise
where the jump before the fall or rise is through a large range

4. Marked Jump Fall/ Marked Jump Rise
where the jump before the rise or fall is through a marked range

5. Slope Falling/ Slope Rising

6. Undulating Falling/ Undulating Rising

7. Level



At this stage the difference between the types of shapes described by Simple Falls or Rises as opposed to Slopes can be observed.

The above system presents the final version of the basic intonation shape distinctions which I found necessary to describe the data. There remained, however, several important additional refinements to be made in connection with these intonation groups.

The first of these was to indicate the range through which a tail rose or fell, or a shape sloped or undulated. Using the same range system of moderate, large, or marked, this was simply noted separately for each intonation shape within the intonation group, as M, L, or MK.

Thus the shapes

would be described respectively as
Moderate Jump Fall L and Large Jump Rise M

The Slope could travel through a number of pitch levels which were either a moderate or large range apart. If the ranges were consistent only one range marking was noted. Where the ranges differed both ranges were noted.

The range through which an Undulating shape could travel obviously depended on various characteristics within the shape of which there were too many to try to restrict. As such, Undulating shapes were additionally described by the largest range through which they travelled at any point in the shape.

The next additional piece of information to be considered was pitch <u>height</u>. The 5 pitch heights used in the denotation of Low (L), Medium Low (ML), Medium (M), Medium High (MH) and High (H) have already been described. I felt it was necessary to note the height from which a falling tail or slope fell and a rising tail or slope rose. The pitch height information was added alongside the range information and underlined. Thus the shapes

and

would now be described respectively as Moderate Jump Fall L <u>H</u> and Large Jump Rise M <u>ML</u>.

The Undulating falls were described by the highest pitch height that they reached at any point in the shape and the Undulating rises by the lowest height. The pitch height at which level shapes stood was noted.

As presented to this stage the intonation grouping system adequately described the vast majority of intonation shapes used. A few shapes arose however which necessitated slight additional refinements to the system.

It was sometimes the case, for example, that the utterance would continue falling or rising to a further level after a jump up or down;

eg. 

or it might continue at the same level;

eg. 

Similarly before a jump up or down the preceding syllables could either be level or rise or fall;

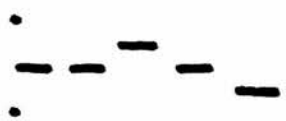
eg. 

Occasionally after a jump up or down, there was an additional syllable at that level before the fall or rise;

eg. 

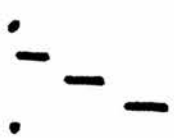
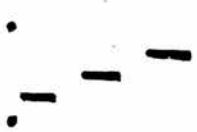
This could also occur within a sloping shape.

I felt that all these were essentially variations on the basic shape caused by the speaker fitting the chosen wording into the intonation shape, although admittedly there is more than one way of doing this without altering the basic shape. As such, I felt that these variations were worth noting but that it was not necessary to create new groupings to accommodate them. I developed a system of classifying such variations. A fall or rise which continued to a further level was called 'progressive' and the range label reflected the total range of the fall or rise.

eg. 

would be described as
Moderate Jump Fall (prog) L MH

The introduction of the notion of a 'progressive' fall or rise gave rise to a potential ambiguity, for given the shape

 or 

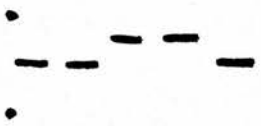
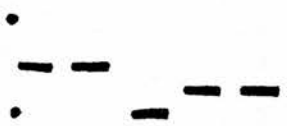
both a Sloping or a progressive Simple Fall or Rise classification could now apply. To resolve this potential source of confusion such shapes were always classed as Sloping.

If the syllables before a jump rose or fell in accordance with the direction of the jump, the range through which they travelled was incorporated into the description of the jump which was additionally marked as 'cumulative'

eg. 

would be described as
(cum) Large Jump Rise L ML

An additional syllable either after a jump or after a rise or fall was classed as a 'plateau'

eg.  and 

would be described respectively as

Moderate Jump (+plat) Fall M MH and Large Jump Rise (+plat) M L

Level syllables before a jump or a Simple fall or rise were not specifically noted.

In this way it was possible to group all the intonation shapes used in the data by both mother and child.

I was now in a position to analyse the mother's intonation use, the child's intonation use, and the attribution of meaning and response of the mother to the child's intonation, and to inter-relate these analyses to address the questions which the thesis had set out to answer.

CHAPTER 4

Application of the Category Systems to the Data Base, Relating the Intonation Forms to the Utterance Functions for Mother and Child, and Relating the Mother's Responses to the Child's Intonation.

The results will in the first case be reported for each child individually, session by session, from the youngest aged to the oldest. The results for both children will then be compared and contrasted.

Within each session the results of the analysis of the mother's utterances for function and related intonation characteristics will be presented first. This will be followed by the results of the analysis of mother's attribution of meaning to the child's intonation productions, after which will follow the results of the analysis of the nature of the child's intonation productions and related utterance functions. The results for mother and child will then be discussed in respect to one another.

The female subject aged between 16 and 24 months over the period of analysis, will here be called Jill, and the male subject, aged between 20 and 28 months over the period of analysis, will here be called Jack.

Presentation of the results involves using a large number of tables overall. Although discussed in the text, many of these tables have been placed in the Appendices, sometimes with a much shortened version appearing in the text for illustrative purposes. The full tables showing the relation between the mothers' utterance functions and intonation groups are contained in Appendix III, as are the tables showing the additional pitch range and height characteristics of the mother's utterances related to utterance function. Tables showing the mother's attribution of meaning and responses to the intonation shape of the child's utterances are contained in Appendix IV.

Close examination of intonation shapes with the additional classification of 'progressive', 'cumulative' or 'plateau', of which there were relatively few, did not reveal any particular pattern of use as is demonstrated in a detailed analysis of utterance function and intonation shape in the sessions of Jill at 16 months and Jack at 20 months. Consequently, these shapes are simply treated as further examples of the particular intonation group to which they belong and are contained within the frequency totals for these groups where these are presented in tables.

It should be noted that in the intonation grouping system the Moderate Jump fall or rise is simply referred to as the Jump fall or rise throughout the following chapters.

In the presentation of the results on the child's utterances, it is noted whether or not utterances are Content Clear. An utterance which is Content Clear may not necessarily be Function Clear but its content is recognisable as 'adult' word forms. Where an adult word form is embedded within an otherwise unintelligible string of sounds such an utterance would be described as partially Content Clear. In the grouped frequency of Content Clear utterances the partially Content Clear utterances are not included. The Content Clear classification is also used in some tables of mother's attribution and response

4.1
The intonation use of Jill and her mother, at 16 months.

4.1.1
Jill, 16 months - Relating mother's intonation form use with utterance functions.

Mother's utterances were grouped by function category and intonation group. Table 1 relates utterance functions with the intonation group divisions of falling, rising and level.

Table 1 (abridged)

Jill 16m - Mother's Utterances

	Intonation Division			
Function	Falling	Rising	Level	Total
Positive Directive	12	9	1	22
Information Comment	15	22		37
Didactic Question	4	7	1	12
Information Question	3	5		8

Table 2 (abridged)

Jill 16m - Mother's Utterances

	Falling Intonation Group					
Function	Simple	Jump	Large Jump	Slope	Undulating	Total
Positive Directive	8	1		2	1	12
Information Comment	3	3	2		7	15
Didactic Question	3	1				4
Information Question		2			1	3

The full version of this table is contained in Appendix III. The mother uses mostly rising and falling shapes and few levels, 54%, 40%, and 7% respectively.

The most popular utterance function is the Information Comment, followed by Positive Directives and then the Question functions, Play utterances of various kinds and Supportives.

In all the major function groups, and many of the others, the mother uses more than one type of intonation division to accompany utterances with that function. Only in certain minor functions where there have been only one or very few utterances can utterance function be linked to only one intonation division shape. Correspondingly each intonation division is used with a large variety of utterance function groups. In the Positive Directives, Information Comments and Information Questions the falling and rising divisions are used fairly equally and rising divisions are used fairly equally although tendencies to one or the other can be observed. In the Didactic Questions, Supportives, Completeness Markers and Play utterances a clearer preference for the rising intonation division can be observed. The Affirmative function can be distinguished by its being related to rising and level intonation shapes only.

Table 2 shows the detail of the Falling shapes in terms of intonation group and Tables 2a and 2b show the pitch range and height characteristics associated with these shapes. Table 3 shows the detail of the Rising shapes and Tables 3a and 3b show the range and height characteristics. Table 4 shows the height characteristics of the Level shapes. These tables are contained in Appendix III.

Both falling and rising compound utterances showed a marked tendency to undulate, partly a result of the sheer length of the utterance and partly because each function unit had its own intonation shape which unless one of them was level, resulted in the joined intonation shape being undulating. Compound utterances were very varied in content and only occasionally did two compound utterances

Table 3 (abridged)

Jill, 16m - Mother's Utterances

	Rising Intonation Group					
Function	Simple	Jump	Large Jump	Slope	Undulating	Total
Positive Directive	2	1	2		4	9
Information Comment	4	2	5		11	22
Didactic Question	1	1	2	1	2	7
Information Question	1		1	1	2	5

Table 4 (abridged)

Jill 16m - Mother's Utterances

Level Intonation Division

Pitch Height

Function	L	ML	M	MH	H	Total
Positive Directive				1		1
Information Comment						
Didactic Question				1		1
Information Question						

with the same function content arise. As such it did not seem worthwhile to analyse the compound utterances in detail: Additionally it seemed that to include them in the totals of intonation group types used by the mother would give a disproportionate idea of the actual use of the undulating shape in respect of specific functions: Consequently the analysis of intonation group and function does not include the compound utterances, in this and all following sessions:

The Simple Fall is the most popular falling shape followed by the Jump and Large Jump and the Undulating:

The most popular rising shape is the Simple rise followed by the Undulating, and the Large Jump:

The most popular Level height is 'medium high':

The most frequently used intonation groups were the Simple rise and the Simple fall and then the Undulating rise: Within each intonation division associated with most functions of which there were more than 2 utterances, a variety of intonation groups were used by the mother: The exception is the rising Play utterances which are all Simple rises: A Positive Directive of this mother could be any one of 4 falling or 4 rising intonation group types or it could be level: Correspondingly most intonation groups could be related to a variety of functions, except for the Marked Jump which was used very rarely generally and only once in this session: Pitch range and height characteristics, presented as totals for each function, showed both variation within intonation groups related to function, and were often identical across functions, except where numbers were very low: As such details of range and height did not serve to distinguish amongst functions and intonation groups:

Nevertheless certain tendencies in the relationship of functions and intonation shape could be observed and these will be noted in respect of particular utterance functions:

Positive Directives

There were more falling than rising Positive Directives: 54% and 41% respectively:
There was a marked tendency for falling Directives to be Simple falls (66%):

Rising Directives were more evenly spread amongst intonation groups but showed a slight tendency towards Undulating (44%):

Information Comment

There were more rising than falling Information Comments (59% and 40%).

Both rising and falling Information comments showed a clear tendency to Undulate (47% and 50%), and indeed any single function Undulating utterance was likely to be an Information Comment.

Supportives

There were 3 times as many rising as falling Supportives.

The falling Supportives were equally spread amongst intonation groups but the rising Supportives showed a clear tendency towards the Simple rise (70%).

Play

The Play utterances are varied in type - listing, nonsense noises, and pretend Prohibitives and Expressive Reactions, however a clear tendency towards the Simple rise is shown:

It was clear that the mother was using neither intonation division nor intonation group in any kind of simplistic manner to indicate utterance function.

4:1:2 Jill, 16 months - Detailed analysis of context accompanying mother's Positive Directives and Information Comments:

In order to test if any clear 'packages' would emerge, the intonation groups were related with a more detailed description of the utterances within a function group, consisting of the propositional content, grammatical form, number of syllables, pragmatic context, gestures and actions and discourse status, certain aspects of contextual detail, such as participants joint knowledge or shared experiences, remain largely inaccessible. This analysis was restricted to Information Comments and Positive Directives because the number of utterances in these functions allowed scope for potential variation in these details.

Tables 5 and 6 and Tables 7 to 9 (in Appendix V) present a detailed analysis of the utterances in the Information Comment function and Positive Directive function respectively.

A full description of the intonation shape is given and the number of utterances of each type, but with only a single brief description of the additional information of, for example, propositional content and pragmatic context, emphasising salient points and distinguishing features where appropriate.

Detailed Analysis of Information Comments

Within the falling shapes identical content and context is related to more than one intonation group. This is also the case within the rising shapes. Additionally, contents and contexts accompanying falling shapes are also seen to accompany rising shapes. Certain contents and contexts, used more than once, are found only in falls or rises, such as 'object label, answering own question' and 'specifying location' respectively.

Detailed Analysis of Positive Directives

The content and contexts of the Positive Directives tend to show slight individual differences in one aspect or another making grouping and comparisons difficult. The Simple falls do however seem to be mostly concerned with directing 'further' or 'alternative' actions in context. Nevertheless, identical contents can be found in both falling and rising intonation groups, such as 'emphasising child to do action' being either an Undulating fall or an Undulating rise.

Discussion of the Detailed Analysis

The analysis did not provide a simple contextual explanation of the mother's variety of intonation shape use. In many cases the content and context details were particular to the utterance in question and could not be easily grouped. Where similarities did arise more than one intonation group was involved, sometimes in a different intonation division altogether. These results suggest both that the mother's intonation use is part of a total communicative package, reflecting slight and subtle differences in the contextual framework, and that, possibly, in certain contexts it may be flexible in form.

Although this level of analysis did highlight the types of features which can influence an intonation shape within a function it showed primarily that the mother's intonation use could not be explained by looking for simple 'groupings' of content or 'contextual features' related to a particular intonation shape. This level of analysis was not repeated in subsequent sessions of this mother and child.

4:1:3 Jill, 16 months - Mother's attribution of meaning and responses to the intonation shape used by the child:

Table 10 shows the mother's attribution of meaning in respect to the child's utterance intonation divisions. The mother's attribution or lack of following utterance was not related to gross intonation divisions in the child's utterances.

Tables 10a - 10c (Appendix IV) show the mother's attribution in respect of intonation groups used by the child within intonation divisions, and to the pitch height of the level shapes. The bracketed figure following the main figure in certain cases, indicates the number of utterances within the main figure for which the content is clear.

From Tables 10a and 10b there would appear to be a tendency of the mother to not respond with an utterance to intonation shapes both falling and rising which are not Simple or are used infrequently. Correspondingly the Non-Overt category tends to be related with Simple falls and rises. Mother's utterances showing clear attribution of meaning to the child's utterance are related mostly to Simple falls and rises.

Table 10c shows that the child only used one height of pitch with the level utterances, but the mother's attribution varies across this suggesting that the mother was not in fact using intonation as such as the basis for her attribution. The tables also indicate that clarity of utterance content was also not the single basis of her attribution.

The behaviour of the child is not shown to be linked to the intonation group in a way that would tie in with the mother's attribution category distinctions. As such it would appear that the mother is using the intonation group type of the child's utterance as a cue for responding with an utterance of some kind or not responding with an utterance, although it may be simply the result of infrequency of use of certain shapes by the child. This distinction applies across both falling and rising intonation divisions.

Table 10

Jill, 16m - Mother's Attribution

Child's Utterances Intonation Division

Attribution	Falling	Rising	Level	Total
No Utterance	6	5	1	12
Intervening Event	-	2	-	2
Non Overt	9	7	2	18
Attribution :				
Information Comment	1			1
Expressive	1		1	2
Play		1		1
	17	15	4	36
Child's Utterances Function Clear:	1			1
	18	15	4	37

The mother' attribution was clear only 4 times. The attribution was not related to any one intonation division, or any one attributed function. Attribution was related to the Simple fall or rise intonation group reflecting both the mother's 'response' disposition and the child's frequency of intonation group use.

Table 11 shows the actual function of the mother's responding utterance related to the intonation divisions within the child's utterances, and Tables 11a-11c (Appendix IV) show this in respect of the intonation groups within these divisions. A variety of response functions can be observed with different selections related to each intonation division. The two most popular types of response functions are the Information Comment and the Didactic Question, which appear to be tied to the falling and rising intonation divisions respectively.

However, out of all the falling utterances only 24% are responded to with an Information Comment and out of all the rising utterances only 31% with a Didactic Question.

No clear pattern emerges in behaviours or other utterance details to explain the mother's choice of response and as such it would appear that the mother's choice of response is influenced to some extent by the intonation shape of the child's utterance.

4.1.4 Jill, 16 months - Child's intonation form use and related utterance functions.

Table 12 shows the child's use of intonation division and group. The child uses the falling and rising divisions fairly equally, 49% and 40% of all shapes respectively.

The most frequently used intonation groups are the Simple fall (37% of all utterances) and the Simple rise (21% of all utterances).

All the content clear utterances of the child are within the falling division, mostly in the Simple falls.

Table 11

Jill, 16m - Mother's Response

Child's Utterances-Intonation Division

Response Function	Falling	Rising	Level	Total
No Utterance	6	5	1	12
Information Comment	4	1		5
Didactic Question		4	1	5
Information Question		1		1
Corrective	1			1
Affirmative	1			1
Challenge Judgement	2	1		3
Play		1*		1
Action Prompt			1	1
Expressive + Explain C's Experience	1*			1
Explain C's Expressiveness	1*			1
Affirm Repeat	1*			1
Expressive and Affirm Repeat	1			1
	17	13	4	34

* Figures with an asterisk represent responses which contained an overt attribution.

Table 12

Jill, 16m - Child's Utterances and Intonation Shape

	Intonation Division			
Intonation Group	Falling	Rising	Level	
Simple	13 (4)	8		
Jump	-	1		
Large Jump	4	4		
Marked Jump	-	-		
Slope	-	1		
Undulating	1 (1) 1	1		
	18(5)1	15	4	37

(x)- a figure in brackets alongside a number represents Content Clear utterances within that number.

x - a figure underlined alonside a number represents Function Clear Utterances within that number.

Table 13

Jill, 16m - Child's Utterances - Function Clear

	Intonation Shape - Falling
Function	Undulating (L, MH)
Expressive Reaction	1

Examination of the child's behaviour accompanying utterances, indicated that no simple relationship exists between the intonation of the child's utterances and the behavioural and pragmatic contexts of the utterances:

Table 13 shows the details of the one utterance of the child which was classed as Function Clear:

4!1!5 Jill, 16 months - Comparison of mother's and child's use of intonation forms!

Mother and child do not use the same proportion of falling and rising shapes overall, however their two most frequently used intonation groups are identical in nature. Table 14 shows the percentage use of each intonation division by the mother and the child.

Table 15 shows the percentage use of the more frequently used intonation groups by both mother and child. For the child percentage of use over all utterances is noted and also percentage of use within the Function Clear utterances only:

4!1!6 Jill, 16 months - Summary of findings on the intonation use of Jill and her mother!

1: Mother uses mostly rising shapes then falling with few levels, (54%, 40% and 7%):

2: The mother's most frequently used intonation groups are the Simple rise and the Simple fall (25% and 17%):

3: The mother does not relate utterance function to intonation division or intonation group in any simple manner:

4: Whether or not the mother 'responds' with an utterance to an utterance of the child may be related to the child's use of intonation group, with shapes with are not Simple falls or rises often receiving no utterance in response:

Table 14 Percentage of Utterances in each

Jill 16m Intonation Division

	Falling	Rising	Level
Mother	40	54	7
Child	49	40	11

Table 15 Percentage of Utterances in particular Intonation Groups

Jill 16m

	Mother	Child	
		All Utterances	Function Clear Utterances
Intonation Group			
Simple Fall	17	37	-
Jump Fall	6	-	-
Large Jump Fall	6	10	-
Undulating Fall	6	3	100
Simple Rise	25	21	-
Large Jump Rise	9	10	-
Undulating Rise	12	3	-
Level	7	11	-

5. The function of the mother's response seems to be influenced by the intonation division of the child's utterance with Information Comments being related to the falling division and Didactic Questions being related to the rising division.

6. The child uses falling and rising shapes almost equally, with few levels (49%, 40% and 11%).

7. The child's most frequently used intonation groups are the Simple fall and the Simple rise (37% and 21%).

8. The child's one Function Clear utterance is an Undulating fall Expressive.

4.2 The intonation use of Jill and her mother, at 19 months.

4.2.1 Jill, 19 months - Relating mother's intonation form use with her utterance functions.

Table 16 (Appendix III) shows the mother's utterance functions related to intonation division. The mother uses falling and rising shapes equally and few levels, 45%, 44% and 10% respectively.

The most popular utterance function, both overall and for the rising and falling shapes individually, is the Information Comment followed by the Positive Directive and Play utterances of various kinds and then the Information Question.

In all the major utterance functions and many of the others the mother uses more than one intonation division and correspondingly each utterance division is used with a variety of functions. In the major functions the use of falling and rising shapes is fairly evenly spread. The Clarification Seek is associated only with the rising intonation division.

Table 16 (abridged)

Jill 19m - Mother's Utterances

	Intonation Division			
Function	Falling	Rising	Level	Total
Positive Directive	13	10	4	27
Information Comment	19	21	1	41
Didactic Question	9	4		13
Information Question	9	10		19

Table 17 (abridged)

Jill, 19m - Mother's Utterances

	Falling Intonation Group					
Function	Simple	Jump	Large Jump	Slope	Undulating	Total
Positive Directive	5	5		1	2	13
Information Comment	7	7	1	1	2	19
Didactic Question	6			1	2	9
Information Question	1	6		1	1	9

Tables 17-19 show the intonation group details of the falling and rising shapes with their pitch range and height characteristics, and the pitch heights of the level shapes (see Appendix III).

The most frequently used intonation groups were the Simple rise, the Simple fall and then the Jump fall, 25%, 20% and 11% respectively.

The mother uses a variety of intonation groups with most functions for which there were more than 3 utterances. Correspondingly the more frequently used intonation groups were used with various functions.

Range and Height characteristics, presented as totals for each function, showed both variation within intonation groups related to function, and were often identical across functions, except where numbers were very low.

Clarification Seek and Acknowledge have very consistent range and height features being, in both cases entirely large range and rising from a height of Medium Low, with the exception of two Clarification Seek's rising from medium. However, although consistent within these functions, these precise pitch range and height features are shared by utterances of several other functions within that intonation group.

Certain tendencies can be observed in the relationship of function to intonation shape.

Positive Directives

There were slightly more falling than rising Positive Directives (48% and 37%).

Falling Directives were mostly Simple or Jump falls (26% and 26%).

Rising Directives were more evenly spread amongst various intonation groups.

Table 18 (abridged)

Jill 19m - Mother's Utterances

	Rising Intonation Group						
Function	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	3	2	3			2	10
Information Comment	3	4	5			9	10
Didactic Question	1	1	2				4
Information Question	4	2			3	1	10

Table 19 (abridged)

Jill, 19m - Mother's Utterances — Pitch Height

	Level Intonation Division					
Function	L	ML	M	MH	H	Total
Positive Directive		2	2			4
Information Comment				1		1
Didactic Question						
Information Question						

Information Comment

There were slightly more rising than falling Information Comments (51% and 46%).

Falling Information Comments were mostly either Simple or Jump Falls (37% and 37%).

Rising Information Comments showed a tendency to Undulate (43%).

Play

There were slightly more falling than rising Play utterances of various kinds (46% and 43%). The most frequently used intonation groups were the Simple fall and the Simple rise (25% and 32%).

Information Question

There was an almost equal frequency of falling and rising Information Questions (47% and 52%).

Falling Information Questions showed a marked tendency towards the Jump Fall (66%).

Rising Information Questions were more spread amongst intonation groups. Three out of the four rising Slopes used in this session were Information Questions.

Didactic Question

There were twice as many falling as rising Didactic Questions (69% and 30%).

Falling Didactic Questions tended to Simple fall (66%)

Rising Didactic Questions were spread amongst intonation groups.

Clarification Seek

All Clarification Seeks were rising and all were Simple Rises.

Acknowledge

There were more rising than falling Acknowledges (75% and 25%).

All rising Acknowledges were Simple rises and both falling Acknowledges were Simple falls.

Expressive Reaction

Most Expressive Reactions were level (54%), and were either Medium or Medium High in pitch height.

4.2.2 Jill, 19 months - Mother's attribution of meaning and responses to the intonation shape used by the child.

Table 20 shows the mother's attribution of meaning in respect of the child's utterance intonation divisions. Tables 20a - 20c (Appendix IV) show the mother's attribution in respect of the intonation groups used by the child within these divisions, and to the pitch height of the level utterances. Table 21 shows the mother's response to the intonation divisions of the child's utterances and Tables 21a - 21c (Appendix IV) show the mother's responses to the intonation groups used and the pitch height of the level shapes.

The mother's attribution categories can be related to all intonation divisions. There is a slightly greater tendency within the rising division to respond with some utterance rather than with no utterance.

The mother's actual attribution of meaning is obvious 5 times, spread across all 3 intonation divisions the majority being contained in the falling division. Attribution of meaning was not related to Content Clear utterances.

Table 20

Jill, 19m - Mother's Attribution

Child's Utterances - Intonation Division

Attribution	Falling	Rising	Level	Total
No Utterance	13	4	10	27
Intervening Event	4	1	1	6
Non Overt	20	13	13	46
Attribution:				
Information Comment	1	1		2
Expressive	1		1	2
Playnoise	1			1
	40	19	25	84
Child's Utterances Function Clear:	4	2	1	7

Table 21

Jill, 19m - Mother's Response

Response Function	Child's Utterances - Intonation Division: Falling	Rising	Level	Total
No Utterance	13	4	10	27
Positive Directive			2	2
Information Comment	2	4	4	10
Didactic Question			1	1
Information Question	6	2	2	10
Corrective Information Comment		1*		1
Affirmative			1	1
Expressive Reaction	1	2		3
Clarification Seek	6	2	1	9
Agreeing		1*		1
Acknowledge	5	2	1	8
Play	1*	1	1	3
Mirrors Child	1*		1*	2

Figures with an asterisk represent responses which contained an overt attribution.

In the falling division the mother's attribution does not appear to be related to any one intonation group. In the rising division there is a possible tendency for the Non Utterance category to be restricted to certain Simple rises. The behaviour description does not highlight any differences between the utterances of the child receiving a No Utterance as opposed to a Non Overt response. Similarly only certain Medium and Medium High level utterances receive a No Utterance response.

The mother's response functions are several, the most frequent being Information Comments, Information Questions and Clarification Seeks and Acknowledgments. In all cases these functions are related in response to utterances of all three intonation divisions. The falling division contains a larger number of these responses, but the child uses falling shapes more often than rises or levels.

Nevertheless, there does seem to be a tendency to respond to a greater frequency of falling shapes with Information Questions (17%) or Clarification Seeks (17%) or Acknowledgments (14%) and correspondingly to a greater frequency of rising and level shapes with Information Comments (22% and 17%).

Given the child's frequency of use of intonation group the mother's response does not appear in general to be related to intonation group. Within the falling division however it is notable that the Information Comment and Information Question are associated with the Simple fall to a greater extent than the Acknowledgement and Clarification Seek which are more associated with Jump falls and Large Jump falls.

4.2.3 Jill, 19 months - Child's intonation form use and related utterance functions

The child's use of intonation division and intonation group is shown in Table 22. The child uses approximately twice as many falling shapes (48%) to rising or level which are used about equally (23% and 28%). Within the falling division the child is using all the intonation groups except for the very rarely used Marked Jump.

The most frequently used intonation groups are the Simple fall, the Simple rise and the Jump fall, 22%, 19% and 15% respectively.

Content Clear and Function Clear utterances are found in all intonation divisions.

Table 23 shows the 7 Function Clear Utterances related to intonation division and Tables 24-26 show the intonation groups and pitch range and height details associated with these utterances. The most frequently used intonation division is the falling.

Although the numbers are very small it can be seen that the child does not consistently relate one intonation division to one utterance function type.

The most frequently used intonation group within the Function Clear utterances is the Simple fall (43%), but where there is more than one utterance in a function both are not found to be Simple falls.

4.2.4 Jill, 19 months - Comparison of mother's and child's use of intonation form, and related utterance functions.

The mother and child do not use the same proportions of falling and rising utterances overall however their most frequently used intonation groups are identical. Table 27 shows the percentage use of intonation division for mother and child.

The child has 7 Function Clear utterances across all 3 intonation divisions. Despite numbers being very small it can be seen that, like the mother, the child does not relate intonation division and intonation group to function in any simple manner.

Table 22

Jill, 19m - Child's Utterances and Intonation Shape

	Intonation Divison		
	Falling	Rising	Level
Intonation Group			
Simple	20 (3), 3		17 (2), 1
Jump	14 (2), 1		2
Large Jump	6 (1)		2 (1), 1
Marked Jump			
Slope	1		
Undulating	3		
	44(6)4	21(3)2	26(1)1 91

(x)- A figure in brackets alongside a number indicates the Content Clear utterances within that number.

x- A figure underlined alongside a number represents Function Clear utterances within that number.

Table 23

Jill, 19m - Child's Utterances - Function Clear

Function	Intonation Division		
	Falling	Rising	Level
Information Question	1	1	
Expressive Reaction	2		
Agreeing			1
Model Repeat	1	1	

Table 24

Jill, 19m - Child's Utterances - Function Clear

	Intonation Group: Falling		
	Simple	Jump	Total
Information Question	1 (L, MH)		1
Expressive Reaction	1 (MK, MH)	1 (L, MH)	2
Model Repeat	1 (L, M)		1

Table 25

Jill, 19m - Child's Utterances - Function Clear

	Intonation Group: Rising		
	Simple	Large Jump	Total
Information Question		1 (L, ML)	1
Model Repeat	1 (M, M)		1

Table 26

Jill, 19m - Child's Utterances - Function Clear

	Intonation Division : Level Pitch Height	
	M	Total
Agreeing	1	1

Table 27 Percentage of Utterances
Jill 19 m in each Intonation Division

	Falling	Rising	Level
Mother	45	44	10
Child	48	23	28

Table 28 shows the percentage use of intonation group for mother and child, for the child this is shown for overall use and for Function Clear utterances only.

Table 28 Percentage of Utterances in
Jill 19 m particular Intonation Groups

	Mother	Child	
Intonation Group		All Utterances	Function Clear
Simple Fall	20	22	43
Jump Fall	11	15	14
Large Jump Fall	2	6	-
Undulating Fall	7	3	-
Simple Rise	25	19	14
Large Jump Rise	5	2	14
Undulatory Rise	8	-	-
Level	10	28	14

Looking at specific intonation group use both similarities and differences emerge: Both mother and child use the Simple fall for the Information Question function but the child also uses the Large Jump rise which is a rising intonation group which the mother does not use for this function in the session, although she does use the Jump rise: The mother used the Large Jump rise for an Information Question in the previous session, but also in that session did not use the Simple fall for this function:

The Expressive Reaction intonation groups are exactly in accordance with the mother's:

For the Agreeing function the child uses a different intonation division from the mother:

Table 29 shows percentage use of intonation group for the child's Function Clear utterances, noting also the mother's use of these intonation groups:

4:2:5 - Jill, 19 months - summary of findings on intonation use of Jill and her mother:

1: The mother uses falling and rising shapes equally and few levels (45%, 44% and 10%):

2: The mother's most frequently used intonation groups are the Simple fall the Simple rise and the Jump fall (20%, 25% and 11%):

3: The mother does not relate utterance function to intonation division or intonation group in any simple manner:

4: The mother's attribution categories do not appear to be related to the intonation groups used by the child:

Table 29 Comparison of frequency of use, in percentages, of
Jill, 19m intonation groups by the mother and child in relation to the child's Function Clear utterances.

Intonation Group

Function	Simple Fall	Jump Fall	Large Jump Fall	Slope Fall	Undulating Fall	Total number of utterances
Information - child	50					2
Question - mother	5	32		5	5	19
Expressive - child	50	50				2
Reaction - mother	33		17			6

	Simple Rise	Jump Rise	Large Jump Rise	Slope Rise	Undulating Rise	
Information - child			50			2
Question - mother	21	10		16	5	19

Level Height

M

Agreeing - child	100	1
mother		1

The figure in the totals column represents the total number of utterances in that function category over all intonation divisions.

5: The function of the mother's response seems to be influenced by the intonation division of the child's utterance with Information Question and Clarification Seek and Acknowledge being related to the falling division and Information Comment. to the rising and level.

6: The child uses twice as many falls to rises or levels (48%, 23% and 28%).

7: The child's most frequently used intonation groups are the Simple fall, the Simple rise and the Jump fall (22%, 19% and 15%).

8: The child's most frequently used Function Clear intonation group is the Simple fall (43%).

9. The child does not relate utterance function to intonation division or intonation group in any simple manner.

4!3 The intonation use of Jill and her mother, at 24 months

4!3!1 Jill, 24 months - Relating the mother's intonation form use with her utterance functions!

Table 30 (Appendix III) relates the mother's utterances function with intonation division.

The mother uses markedly more falling than rising shapes and few levels, 55%, 33% and 12% respectively. The most frequently used functions are the Information Comment and Positive Directive and then the Information Question and the Didactic Question.

In all the major utterance functions the mother uses more than one intonation division, and except where numbers are very small this can also be seen to apply to the minor functions. Each utterance division is used with a variety of functions. In the major functions the use of the falling division predominates.

Table 30 (abridged)

Jill, 24 - Mother's Utterances

Function	Intonation Division: Falling	Rising	Level		Total
Positive Directive	18		7	3	28
Information Comment	19		13	1	33
Didactic Question	11		7		18
Information Question	15		5		20

Table 31 (abridged)

Jill, 24m - Mother's Utterances

Function	Falling Intonation Group: Simple	Jump	Large	Marked Jump	Slope	Undulating	Total
Positive Directive	8	4	1		3	2	18
Information Comment	4	3	3			9	19
Didactic Question	4	2	3			2	11
Information Question	5	5	2			3	15

Tables 31-33 (Appendix III) show the intonation group details of the falling and rising shapes and their pitch range and height characteristics, and the pitch heights of the level shapes.

The most frequently used intonation groups were the Simple fall and the Simple rise followed by the Jump fall, 21%, 15% and 12% respectively. The mother used a variety of intonation groups with most functions. Correspondingly the more frequently used intonation groups were used with a variety of functions. The falling Slope can be distinguished by its being used solely with Positive Directives.

Range and height characteristics, presented as totals for each function, showed both variation within intonation groups related to function and were often identical across functions. In the rising division Undulating Information comments are highlighted as being the only single function Undulating rises for which, in the majority of cases the lowest pitch height is Medium, as opposed to the more frequently found Medium Low.

In the level division there is a marked tendency to use the Medium pitch height.

Certain observations can be made on the relationship of function to intonation shape in the mother's utterances.

Positive Directives

There were over twice as many falling to rising Positive Directives (64% and 25%).

The most frequent falling intonation group was the Simple fall containing 44% of the falling Positive Directives.

The rising Directives were fewer in number but over half were Undulating.

All the level Positive Directives were at Medium height.

Table 32 (abridged)

Jill, 24m - Mother's Utterances

Rising Intonation Group

Function	Simple	Jump	Large Jump	Slope	Undulating	Total
Positive Directive	2	1			4	7
Information Comment	1	4	3		5	13
Didactic Question	4		1	1	1	7
Information Question	3				2	5

Table 33 (abridged)

Jill, 24m - Mother's Utterances

Level Intonation Division

Pitch Height

Function	L	ML	M	MH	H	Total
Positive Directive						
Information Comment			3			3
Didactic Question						
Information Question				1		1

Information Comment

There were more falling than rising Information Comments (58% and 39%).

The most frequent falling intonation group was Undulating (47%), and the most frequent rising was Undulating (38%).

Information Question

There were 3 times as many falling to rising Information Questions (75% and 25%).

The most frequently used falling intonation groups were the Simple fall and the Jump fall (33% each).

Out of the two rising intonation groups used the Simple rise was slightly more frequent.

Didactic Question

There were more falling than rising Didactic Questions (55% and 39%).

The most frequently used falling intonation group was the Simple fall (36%) and the most frequently used rising group the Simple rise (57%).

Play

There was an equal number of falling and rising Play utterances.

The most frequently used intonation groups were the Simple fall and the Simple rise (31% and 23%).

One third of all the Medium High level shapes were Play utterances.

4!3!2 Jill, 24 months - Mother's attribution of meaning and responses to the intonation shape used by the child!

Table 34 shows the mother's attribution of meaning in respect of the child's utterance intonation divisions: Tables 34a - 34c (Appendix IV) show the mother's attribution in respect of the intonation groups used by the child within these divisions, and to the pitch height of the child's level utterances.

Table 35 shows the mother's response function to the child's utterance intonation divisions, and Tables 35a - 35c (Appendix IV) show the mother's responses to the intonation groups used and the pitch height of the level shapes:

The mother's attribution categories can be related to all intonation divisions. There is a greater tendency to respond with No Utterance to level shapes (65%) than to falling shapes (30%) or rising shapes (34%), and thus correspondingly more 'responses' of some kind of utterance to falling and rising shapes: There is no behavioural basis for this differential response pattern: Neither can the pattern be related to clarity of utterance content.

The mother's attribution of function was obvious on 13 occasions spread across all 3 intonation divisions, the majority being contained in the falling division. On two of these occasions the utterance content is not actually clear but both of these utterances are part of a fantasy sequence of joint activity involving 'mending' an object with a selection of tools and the mother's attribution of meaning can be related quite clearly to the actions of the child, although this is not to suggest that the mother is not using the intonation itself as an additional cue to meaning. Not all Content Clear Utterances received an overt attribution of meaning:

In the falling division the mother's attribution categories are not related to any one intonation group: The mother would however, appear to be less inclined to respond with an utterance to Large Jumps than to Jumps, and there is no behavioural or content clarity explanation of this, other than that three of the Large Jump

Table 34

Jill, 24m - Mother's Attribution Child's Utterances

	Intonation Division			
Attribution	Falling	Rising	Level	Total
No Utterance	15	12	15	42
Intervening Event	1		2	3
Non Overt	25	21	4	50
Attribution:				
Information Comment	8	2	2	12
Expressive Reaction	1	1		1
	50	35	23	108
Child's Utterances Function Clear:	20	6	17	43
	70	41	40	151

Table 35

Jill, 24m - Mother's Response

Child's Utterances - Intonation Division

Response Function	Falling	Rising	Level	Total
No Utterance	15	12	15	42
Positive Directive	4	3		7
Information Comment	6	4		10
Didactic Question	9	2	1	12
Information Question	3	2	1	6
Corrective	1	4	1	6
Corrective Comment	1		1	2
Corrective Information Comment		1		1
Affirmative			1	1
Didactic Model	1			1
Corrective Prompt		1		1
Challenge Judgement	1			1
Check Message	2	1		3
Dialogue Device		1		1
Acknowledge		2		2
Clarification Seek	1			1
Expressive + Info Comment	4			4
Expressive + Info Question	1			1
Mirroring Child	1			1
Completeness Marker			1	1
Repeat Affirm		2		2
	49	35	21	

utterances are consecutive utterances within the same activity sequence. The majority of the attributed Information Comments are Simple falls.

All but 2 of the child's rising utterances are Simple rises.

No pattern emerges in the mother's attribution related to the pitch height of the level utterances.

The functions of the mother's response are not related to any one intonation division except where numbers are very low. The most frequent response function is the Didactic Question and 75% of these are in response to falling shapes. The next most frequent category is the Information Comment which is spread fairly evenly across the falling and rising divisions, as is the slightly less frequent Positive Directive. The Corrective shows a tendency towards the rising division and the compound Expressive and Information Comment is found only with the falling division.

Within the falling division the majority of the Didactic Questions are responses to Simple falls. There would appear to be no behavioural basis for this within the falling division and indeed no behavioural basis across divisions for the majority of Didactic Questions being to falling utterances, although only 18% of all falling utterances are responded to in this way.

4:3:3 - Jill, 24 months - Child's intonation form use and related utterance functions

The child's use of intonation division and intonation group is shown in Table 36. The child uses almost twice as many falling shapes to rising or level which are used equally (46%, 27% and 26%). Within the falling division the child is using all the intonation groups except for the Marked Jump.

The most frequently used intonation groups are the Simple fall and the Simple rise (35% and 34%).

Table 36

Jill, 24m - Child's Utterances and Intonation Shape

	Intonation Division			
Intonation Group	Falling	Rising	Level	
Simple	53 (30) 15	37 (16) 5		
Jump	7 (5) 3			
Large Jump	7 (4) 2	2 (1) 1		
Marked Jump	-	-		
Slope	1	2		
Undulating	2	-		
Total	70 (39) 20	41 (17) 6	40 (26) 17	151

(x)- A figure in brackets alongside a number indicates the Content Clear utterances within that number.

x- A figure underlined alongside a number represents Function Clear utterances within that number.

Table 37

Jill, 24m - Child's Utterances

Function	Function Clear Intonation Division: Falling	Rising	Level	Total
Positive Directive				
Information Comment	4	3		7
Didactic Question				
Information Question	1			1
Corrective			1	1
Affirmative	8		9	17
Expressive Reaction	3			3
Play	3	1	5	9
Acknowledge Question		1		1
Model Repeat	1	1	2	4
	20	6	17	43

Table 38

Jill, 24m - Child's Utterances: Function Clear Falling Intonation Group

Function	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive							
Information Comment	3	1					4
Didactic Question							
Information Question	1						1
Affirmative	8						8
Expressive Reaction		1	2				3
Play	2	1					3
Model Repeat	1						1
	15	3	2				20

Table 39

Jill, 24m - Child's Utterances: Function Clear Rising Intonation Group

Function	Simple Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive						
Information Comment	2	1				3
Didactic Question						
Information Question						
Acknowledge Question	1					1
Play	1					1
Model Repeat	1					1
	5	1				6

Table 40

Jill, 24m - Child's Utterances Function Clear Levels

	Pitch Height					
Function	L	ML	M	MH	H	Total
Corrective		1				1
Affirmative		6		3		9
Play		1	4			5
Model Repeat		1	1			2
		9	5	3		17

Content Clear and Function Clear utterances are found in all intonation divisions, although to a lesser extent in the rising. A particularly high percentage of level shapes are Function Clear (42%) compared to falling (29%) and rising (12%).

Tables 37-39 show the child's Function Clear utterances related to intonation division and intonation group.

Table 40 shows the pitch heights of the level shapes.

The child does not relate the utterance functions to any one intonation division except where numbers are very small. The most frequently used function is the Affirmative and it is noteworthy that no rising shapes are used with this function.

The next most frequently used function is Play and again there is a marked tendency to use level or falling shapes. Following this is the Information Comment where the level shape is not being used but the falling and rising are being used almost equally.

The most frequently used Function Clear intonation groups are the Simple fall and the Simple rise (35% and 12%). The most frequently used level height is Medium Low. Pitch range and height characteristics varied within intonation groups used with a particular utterance function, and identical characteristics appeared within intonation groups across utterance functions. Five of the eight Simple fall Affirmatives were of Moderate range, falling from a Medium Low height. The Affirmative was the only function for which this particular falling intonation shape was used. The majority of the level Affirmatives were at the Medium Low pitch height.

4:3:4 - Jill, 24 months - Comparison of mother's and child's use of intonation form, and related utterance functions.

Mother and child use similar proportions of falling and rising utterances overall and their most frequently used intonation groups are identical.

Table 41 shows the percentage of use of intonation division for mother and child. Table 42 shows the percentage use of intonation group for mother and child. For the child this is shown for overall use and for Functions Clear utterances alone. Table 43 shows percentage use of intonation group for the child's Function Clear utterances, noting also the mother's use of comparable intonation groups with these functions.

The child has 43 Function Clear utterances. It can be seen that, like the mother, the child does not relate intonation division or intonation group to utterance function in any simple manner.

The child's most frequent function is the Affirmative for which the rising division is not used. The mother uses this function only twice, but on both occasions the intonation group used is the Simple fall which is the intonation group used by the child for all of the falling Affirmatives.

The child's use of intonation group with Information Comments is not incompatible with the mothers but neither does it reflect her most frequent use of intonation group for this function in this session. The child's use is in fact closer to the mother's use in the previous session.

4.3.5. - Jill, 24 months - Summary of findings on the intonation use of Jill and her mother.

1. The mother uses more falling than rising shapes and few levels (55%, 33% and 12%).

2. The mother's most frequently used intonation groups are the Simple fall and the Simple rise and the Jump fall (21%, 15% and 12%).

3. The mother does not relate utterance function to intonation division or intonation group in any simple manner.

Table 41 — Percentage of Utterances in each Intonation Division

Jill 24m

	Falling	Rising	Level
Mother	55	33	12
Child	46	27	26

Table 42 — Percentage of Utterances in particular Intonation Groups

Jill 24 m

	Mother	Child	
Intonation Group		All Utterances	Function Clear
Simple Fall	21	35	35
Jump Fall	12	5	7
Large Jump Fall	6	5	5
Undulating Fall	9	1	-
Simple Rise	15	34	12
Large Jump Rise	5	1	2
Undulating Rise	8	-	-
Level	12	26	40

Table 43 Comparison of frequency of use, in percentages,,
Jill 24m of intonation groups by the mother and child in relation to the child's Function Clear utterances.

	Intonation Group				
Function	Simple Fall	Jump Fall	Large Jump Fall	Undulating Fall	Total number of utterances
Information Comment - child	43	14			7
- mother	12	9	9	27	33
Information Question - child	100				1
- mother	25	25	10	15	20
Affirmative - child	47				17
- mother	100				2
Expressive Reaction - child		33	66		3
- mother	38				8
Play - child	33	11			9
- mother	30	8			13

The figure in the totals column represents the total number of utterances in that function category over all intonation divisions.

Table 43 (continued)

Jill 24m

		Simple Rise	Jump Rise	Large Jump Rise	Undulating Rise	
Information						
Comment -	child	28		14		7
-	mother	3	12	9	15	33
Acknowledge						
Question -	child	100				1
-	mother					-
Play -	child	11				9
-	mother	23		8	8	13

Table 43 (continued)

Jill, 24m

		Level Height ML	M	MH	Total Number of utterances
Corrective	child	100			1
	mother				1
Affirmative -	child	35		18	17
	mother				2
Play -	child	11	44		9
-	mother		23	8	13

The figure in the totals column represents the total number of utterances in that function category over all intonation divisions.

4. Whether or not the mother responds with an utterance to an utterance of the child can be related to the intonation division of the child's utterance.

5. The function of the mother's response seems to be influenced by the intonation division of the child's utterance with Didactic Questions being related to the falling division.

6. The child uses mostly falling shapes and then rising and level shapes equally (46%, 27% and 26%).

7. The child's most frequently used intonation groups are the Simple Fall and Simple Rise (35% and 34%).

8. The child's most frequently used Function Clear intonation group is the Simple Fall (35%).

9. The child does not relate utterance function to intonation division or intonation group in any simple manner.

4.4 Comparison of the intonation use of Jill and her mother at 16 months, 19 months and 24 months.

The main result of the analysis into the mother's intonation use seen in each session is the complexity of use that has become apparent. The breadth of possible intonation shapes to accompany any of the major utterance functions spans all 3 of the intonation divisions and most of the intonation groups within them. Pitch range and height characteristics are not shown to systematically relate utterances within an intonation group to particular functions and utterances within a particular function are shown to have different pitch and height characteristics even when in the same intonation group.

Further analysis of the propositional content, discourse status, grammatical form, behavioural context and pragmatic context indicated that no one of these measures could account for the variation in intonation use.

It seems that the mother is using intonation as part of a communicative package the precise make-up of which depends on various contextual factors.

Over the three sessions the mother's overall use of shape is seen to alter from being more rising than falling to equal proportions of rising and falling to more falling than rising, with level always being used relatively infrequently.

Nevertheless within this complexity there are some consistent aspects of use in the mother's intonation. The most frequently used intonation groups are identical over the three sessions. The most frequently used intonation groups related to a particular function within an intonation division show only a certain systematicity. In the falling division, for example, the Simple fall is the most frequently used intonation group with Positive Directives over all three sessions and in the rising division the Undulating intonation group is consistently the most frequently used with Information Comments.

The Clarification Seek is exclusively related to the rising division and the Simple rise.

The mother's attribution and response to the child's utterances are seen to be being influenced by the intonation shape of the child's utterance but in different ways in each session. Where the mother's Question responses seem related to rising intonation shapes in the first session, in the second session they are related to falling shapes. Similarly where Information Comment responses are related to falling shapes in the first session, in the second and third sessions they are related to rising shapes and level shapes, and in the third session to falling and rising shapes.

Table 44 shows the percentage frequencies of falling, rising and level shapes which are responded to with Information Comments, Didactic Questions and Information Questions over the three sessions. The mother on a few occasions could be seen to overtly attribute Information Comments, Expressive Reactions and Play Utterances, slightly moreso to falling utterances.

Table 44

Frequency in percentages of mother's response to child's intonation form

Jill - 16, 19 and 24 m

Intonation Division

	Falling Age in months			Rising Age in months			Level Age in months		
Response	16	19	24	16	19	24	16	19	24
Information	24	6	12	8	22	11	-	17	-
Comment									
Didactic	-	-	18	31	-	6	8	4	5
Question									
Information									
Question	-	17	6	8	11	6	-	8	5

The child's use of falling to rising and level shapes in general does not show the same turnabout as the mothers (see table 45). The child firstly uses an almost equal number of falling and rising shapes and few levels, but in the second and third sessions uses almost twice as many falling shapes to rising and level which are used about equally.

The child's most frequently used intonation groups are consistent over the three sessions and are identical to the mother's in all sessions.

Table 46 shows the frequency of use of different intonation groups by the mother and child over the three sessions. Both mother and child use the Simple rise and the Simple fall most frequently overall. The child uses the Simple fall most frequently for Function Clear utterances.

The other intonation groups are used with varying frequency by mother and child. The mother uses the Undulating rise consistently but the child does not use this group at all in the second and third sessions.

The number of Function Clear utterances of the child rises dramatically over the three sessions moving from 1 to 7 to 43. Even in the second session with relatively few Function Clear utterances it can be seen that the child does not relate utterance function to intonation division or to intonation group in any simple manner, making the child's pattern of use the same as that of the mother.

In the third session there were many more Function Clear utterances of the child, although only 8 functions were used. Where the same functions were used in the previous session the child's use was partly as before and partly not. The child still used a Simple fall for the Information Question and a Jump fall for one of the Expressive Reactions, but a different intonation group was also used for this latter category.

Table 45
Jill - 16, 19 and 24 m Percentage of utterances in each intonation division for mother and child

	Mother			Child		
	Child's age in months			Age in months		
Intonation Division	16	19	24	16	19	24
Falling	40	45	55	49	48	46
Rising	54	44	33	40	23	27
Level	7	10	12	11	28	26

Table 46
Jill - 16m, 19m 24m Percentage of Utterances in particular Intonation Groups

	Mother			Child					
				All Utterances			Function Clear		
	Childs Age in months			Age in months			Age in months		
Intonation Group	16	19	24	16	19	24	16	19	24
Simple Fall	17	20	21	37	22	35	-	43	35
Jump Fall	6	11	12	-	15	5	-	14	7
Large Jump Fall	6	2	6	10	6	5	-	-	5
Undulating Fall	6	7	9	3	3	1	100	-	-
Simple Rise	25	25	15	21	19	34	-	14	12
Large Jump Rise	9	5	5	10	2	1	-	14	2
Undulating Rise	12	8	8	3	-	-	-	-	-
Level	7	10	12	11	28	26	-	14	40

Comparing the child and mother in this session, a general accordance could once again be observed, particularly in intonation division use, although in the major function of Information Comment the child did not use the intonation shapes used most frequently by the mother:

4:5 The intonation of Jack and his mother, at 20 months

4:5:1 Jack, 20 months - Relating mother's intonation form use with her utterance functions:

Table 47 (Appendix III) shows the mother's utterance functions related to intonation division: The largest number of the mother's utterances are falling (62%) followed by rising (26%) and then level (12%): The most frequently used function, both overall and for each separate intonation division is the Positive Directive: The next most frequently used function overall is the Information Comment and then the Expressive Reaction:

In most functions except where numbers are very small the mother uses more than one intonation division and correspondingly each intonation division is used with a variety of functions:

Opposives and Play utterances are related only to the falling division and Clarification Seeks only to the Rising:

Tables 48-50 (Appendix III) show the intonation group details of the falling and rising shapes and their pitch range and height characteristics, and the pitch heights of the level shapes:

The most frequently used intonation group was by far the Simple fall (38%), followed by the Simple rise, the Jump fall and the Undulating fall about equally (11%, 10% and 10%):

The mother used a variety of intonation groups in connection with most utterance functions except where the numbers were very small. Correspondingly the more frequently used intonation groups were used with a variety of functions.

Table 47 (abridged)

Jack, 20m - Mother's Utterances

Intonation Division

Function	Falling	Rising	Level	Total
Positive Directive	41	12	12	65
Information Comment	13	5	-	18
Didactic Question	3	3		6
Information Question	1		1	2

Table 48 (abridged)

Jack, 20m - Mother's Utterances

Intonation Group

Function	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	24	8	4		1	4	41
Information Comment	2	5			1	5	13
Didactic Question		1	2				3
Information Question						1	1

Table 49 (abridged)

Jack, 20m - Mother's Utterances

Rising Intonation Group

Function	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	1	3	3		1	4	12
Information Comment	1	1			1	2	5
Didactic Question	2	1					3
Information Question							

Table 50 (abridged)

Jack, 20m - Mother's Utterances

Level Intonation Division
Pitch Height

Function	L	ML	M	MH	H	Total
Positive Directive		2	6	4		12
Information Comment						
Didactic Question						
Information Question				1		1

All falling Expressive Reactions were Simple falls and the Clarification Seeks were all Simple rises.

Range and height characteristics, presented as totals for each function, showed both variation within intonation groups related to function, and were often identical across functions.

In the rising division the Clarification Seeks showed a distinctive range and height pattern within the Simple rise intonation group as did Large Jump Positive Directives. The level shapes showed a variety of pitch heights in all functions for which there was more than one utterance.

Certain tendencies can be observed in the relationship of function to intonation group.

Positive Directives

63% of all Positive Directives were falling, 18% rising and 18% level.

Falling Directives showed a marked tendency towards the Simple fall intonation group (58%).

The rising Directives related more equally to a variety of intonation groups.

Information Comments

There were over twice as many falling to rising Information Comments (72% and 27%).

Falling Information Comments did not show the general tendency towards Simple falls but were instead mostly Jump falls and Undulating (38% and 38%).

Didactic Questions

Although few in number overall and being equally falling and rising, falling Didactic Questions were confined to Jump falls and Large Jump falls.

4:5:2 Jack 20 months - Detailed analysis of context accompanying mother's Positive Directives and Information Comments

As this was the first session for this mother and child, the mother's intonation group use was related with a more detailed description of the utterances within a function group in order to see if any particular basis for the mother's variety of intonation use would emerge. The Positive Directives and Information Comments were further described in terms of propositional content, grammatical form, number of syllables, pragmatic context, gestures and action, and discourse status.

Tables 51-55 (Appendix V) show the detailed description of the Positive Directives and Information Comments.

Detailed Analysis of Positive Directives

The general nature of the content of the Positive Directives was very similar throughout the various intonation groups in both the falling and rising divisions. Other than Directive Markers being Simple falls usually falling from Medium height, no association emerged of particular intonation shapes and content, of success of the Directive or of any of the other pragmatic and contextual considerations noted.

The level Positive Directives were largely the same in content being the single word 'look'. No grouping of pitch height and other contextual factors emerged.

Detailed Analysis of Information Comments

Both straightforward identifications of object or noise are Jump falls, with a moderate pitch range. Where added interest is involved the shape used is the Undulating fall through a marked pitch range. Undulating shapes in both falling and rising divisions through a moderate or large range tend to contain evaluations or judgements, but also procedural and descriptive comments which are found throughout the intonation groups in both intonation divisions.

Discussion of the Detailed Analysis

The analysis did not provide a simple contextual explanation of the mother's variety of intonation shape use. Similarities of content and context were found across intonation groups and intonation division. The level Positive Directives were an exception to this being clearly associated with single word visual attention content, although variations in pitch height remained unexplained. In many cases the content and context details were particular to the utterance in question and could not be easily, or usefully grouped. In other cases, a pairing of two utterances would emerge, but lack of numbers made generalisations somewhat arbitrary.

Although this level of analysis did highlight the types of features which may influence an intonation shape within a function, it showed primarily that the mother's intonation use could not be explained by looking for simple 'groupings' of content or contextual features related to a particular intonation shape. This level of analysis was not repeated in subsequent sessions of this mother and child.

4:5:3 Jack, 20 months - Mother's attribution of meaning and responses to the intonation shape used by the child:

Tables 56 shows the mother's attribution of meaning in respect of the child's utterance intonation divisions. Tables 56a - 56c (Appendix IV) show the mother's attribution in respect of the intonation groups used by the child within these divisions, and to the pitch heights of the level utterances.

Table 56

Jack, 20m - Mother's Attribution

	Intonation Division			
Attribution	Falling	Rising	Level	Total
No Utterance	9	4	16	29
Intervening Event	-	1	2	3
Non Overt	2	12	11	25
Attribution:				
Information Comment	1	2	2	5
Positive Directive	-	1	2	3
	12	20	33	65
Child's Utterances				
Function Clear:	2	-	-	2
				67

Table 57 shows the function of the mother's response to the intonation divisions of the childs utterances and Tables 57a - 57c (Appendix IV) show the mother's responses to the intonation groups of the child's utterances and to the pitch heights of the level shapes.

The mother's attribution categories can be related to all intonation divisions. The child uses the falling intonation division least and 75% of these falling utterances which are not Function Clear receive No Utterance in response which is markedly higher than the percentage of rises (25%) or levels (48%) which receive No Utterance. There would not appear to be a simple behavioural basis for this differential response.

The mother's attribution is obvious on 8 occasions, contained across all 3 intonation divisions, but mostly within the level and rising divisions. The child uses mostly Simple falls and rises making the numbers in the other intonation groups very small, but the mother's attribution categories do not appear to be related to intonation group. Not all Content Clear Utterances received an overt attribution of meaning.

The function of the mother's responses can be related to more than one division where there is more than one response of that function. The most frequent response functions were the Affirmative, Positive Directive and Clarification Seek. Affirmatives were most associated with the rising division and Positive Directives with the level.

Within the falling intonation division the mother's responses were connected with different falling intonation groups but in the rising division nearly all were connected to the Simple rise intonation group. Within the level division response functions could not be related to particular pitch heights although both Information Comment responses were to Medium height levels.

Table 57

Jack, 20m - Mother's Response

Response Function	Child's Intonation Division: Falling	Rising	Level	Total
No Utterance	9	4	16	29
Positive Directive		1, 1*	4	6
Information Comment			1, 1*	2
Supportive			1	1
Corrective Information Comment			1	1
Affirmative	1	6		7
Expressive Reaction	1*			1
Check Message			1	1
Prohibitive Directive			1*	1
Agreeing			1	1
Clarification Seek		3	2	5
Repeat Affirm		2*	1*	3
Refuse to comply			1*	1
Corrective + Information Comment		1		1
Corrective + Didactic Question		1		1
Laughter	1			1

Figures with an asterisk represent responses which contained an overt attribution.

4.5.4. Jack, 20 months - Child's intonation form use and related utterance functions.

Table 58 shows the child's use of intonation division and intonation group. The child uses mostly level shapes (49%) and then rising shapes (30%).The most frequently used intonation groups are the Simple rise and the Simple fall (25% and 13%). Content Clear utterances are found in all intonation divisions although mostly in the falling and rising. Function Clear utterances are found only in the falling division. Tables 59 and 60 show the 2 Function Clear Utterances related to intonation division and intonation group with pitch and height details. Both Function Clear utterances were Simple falls.

4.5.5. Jack, 20 months - Comparison of mother's and child's use of intonation form, and related utterance functions.

Mother and child's overall frequency of use of falling, rising and level shapes are completely opposite (Table 61). For the child the falling division is the least used overall but it is in fact the only intonation division in which Function Clear utterances are found. Within the falling and rising divisions the most frequently used intonation groups are identical for mother and child (Table 62).

The child has only two Function Clear utterances, of different functions, and both are Simple falls. Such use is in accordance with the mother's most frequently used intonation groups for these functions (Table 63)

4.5.6 Jack, 20 months - Summary of findings on the intonation use of Jack and his mother.

1. The mother uses 3 times as many falling to rising shapes and few levels (62%, 26% and 12%).

2. The mother's most frequently used intonation group was the Simple fall (38%).

Table 58

Jack, 20m - Child's Utterances and Intonation Shape

	Intonation Division			
Intonation Group	Falling	Rising	Level	Total
Simple	9(3) 2	17(4)		
Jump	3	2(1)		
Large Jump	1			
Marked Jump				
Slope				
Undulating	1	1		
Total	14 (3) 2	20 (5)	33(1)	67

(x) A figure in brackets alongside a number represents Content Clear utterances within that number.

x A figure underlined alongside a number represents Function Clear utterances within that number.

Table 59

Jack, 20m - Child's Utterances - Function Clear

	Intonation Division		
Function	Falling	Rising	Level
Expressive Reaction	1		
Play phrase	1		

Table 60

Jack 20m - Child's Utterances - Function Clear

	Intonation Group - Falling
Function	Simple
Expressive Reaction	1 (M,M)
Play phrase	1 (L, MH)

Table 61

Jack, 20 m — Percentage of Utterances in each Intonation Division

	Falling	Rising	Level
Mother	62	26	12
Child	20	30	49

Table 62

Jack 20 m — Percentage of Utterances in particular Intonation Groups

	Mother	Child	
		All Utterances	Function Clear
Intonation Group			
Simple Fall	38	13	100
Jump Fall	10	4	-
Large Jump Fall	5	1	-
Undulating Fall	10	1	-
Simple Rise	11	25	-
Jump Rise	6	3	-
Large Jump Rise	2	-	-
Undulating Rise	5	1	-
Level	12	49	-

Table 63

Jack, 20m

Comparison of percentage of use of intonation groups by mother and child in relation to the child's Function

Clear Utterances

Function		Intonation Group: Simple Fall	Total Number of Utterances
Expressive	- child	100	1
Reaction	- mother	50	12
Play	- child	100	1
	- mother	60	3

3. The mother does not relate utterance function to intonation division or intonation group in any simple manner.

4. The mother's attribution categories are influenced by the intonation division of the child's utterances, with the mother tending to respond with No Utterance to falling utterances of the child.

5. The mother's response functions are influenced by the intonation divisions of the child's utterances with Positive Directives being related to the level division and Affirmatives with the rising.

6. The child uses mostly level shapes, then rising and then falling (49%, 30% and 20%).

7. The child's most frequently used intonation groups are the Simple rise and the Simple fall (25% and 13%).

8. The child's only Function Clear intonation group is the Simple fall.

4.6 The intonation use of Jack and his mother at 23 months.

4.6.1 Jack, 23 months - Relating mother's intonation form use with her utterance functions.

Table 64 (Appendix III) shows the mother's utterance functions related to intonation division. The mother's utterances are mostly falling (54%), followed by rising (36%) with few levels (10%).

The most frequently used function is the Positive Directive followed by the Didactic Question and then Information Questions and Information Comments.

In most functions, except where numbers are very small, the mother uses more than one intonation division, and correspondingly each intonation division is used with a variety of functions.

Table 64 (abridged)

Jack 23m - Mother's Utterances

Function	Intonation Division			
	Falling	Rising	Level	Total
Positive Directive	16	8	3	27
Information Comment	7	6		13
Didactic Question	13	10		23
Information Question	12	2	1	15

Table 65

Jack 23m - Mother Utterances

Function	Falling Intonation Group						
	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	7	3	3	1		2	16
Information Comment			2			5	7
Didactic Question	4	5	1			3	13
Information Question		3		2		7	12

Information Questions, Supportives, and Opposives show a marked tendency to fall, as does, to a lesser extent, the Positive Directive.

Affirmatives and Affirmative Repeats are found only with the rising division.

Table 65 - 67 (Appendix III) show the intonation group details of the falling and rising shapes and their pitch range and height characteristics, and the pitch heights of the level shapes.

The most frequently used intonation groups are the Simple fall, the Simple rise, and the Undulating fall (18%, 16% and 16%)

Generally the mother can be seen to use more than one intonation group in connection with utterance functions except where numbers are very small. Correspondingly most intonation groups are used with a variety of functions.

Range and height characteristics presented as totals for each function, showed both variation within intonation groups related to function, and were often identical across functions.

Certain observations can be made on the relationship of function to intonation group.

Positive Directives

59% of Positive Directives were falling, 30% rising, and 11% level.

Falling Positive Directives were mostly Simple falls, (44%), the rest being spread amongst 4 other intonation groups.

Rising Positive Directives were mostly Undulating, (62%).

All 3 level Positive Directives were at Medium height.

Table 66 (abridged)

Jack 23m - Mother's Utterances

Rising Intonation Group

Function	Simple	Jump	Large Jump	Slope	Undulating	Total
Positive Directive	1		1	1	5	8
Information Comment	1	1			4	6
Didactic Question	2	3	2		3	10
Information Question			1		1	2

Table 67 (abridged)

Jack 23m - Mother's Utterances

Level Intonation Division
Pitch Height

Function	L	ML	M	MH	H	Total
Positive Directive			3			3
Information Comment						
Didactic Question						
Information Question				1		1

Information Question

80% of Information Questions were falling, 13% rising, and 7% level. Falling Information Questions were mostly Undulating (58%).

Rising and level Information Questions were too few in number to show tendencies.

Didactic Question

There were only slightly more falling than rising Didactic Questions and a spread of intonation groups was used in each division showing no particular tendencies.

Information Comment

There was an almost equal number of falling and rising Information Comments. In both cases the Undulating intonation group was the most used - falls 71%, rises 67%.

In the rising division the Simple rise was the only intonation group used with Correctives, Affirmatives, Affirmative Repeats and Clarification Seeks.

4.6.2 Jack, 23 months - Mother's attribution of meaning and responses to the intonation shape used by the child.

Table 68 shows the mother's attribution of meaning in respect of the child's utterance intonation divisions. Tables 68a - 68c (Appendix IV) show the mother's attribution in respect of the intonation groups used by the child within these divisions, and to the pitch heights of the level utterances.

Table 69 shows the function of the mother's response to the intonation divisions of the child's utterances, and Tables 69a - 69c (Appendix IV) show the mother's responses to the intonation groups of the child's utterances and to the pitch heights of the level shapes.

Table 68

Jack 23m - Mother's Attribution

Attribution	Child's Utterances-Intonation Division			
	Falling	Rising	Level	Total
No Utterances	19	11	10	40
Intervening Event	1		2	3
Non Overt	32	21	10	63
Attribution:				
Information Comment	2	8		10
Positive Directive	1			1
	55	40	22	117
Child's Utterances Function Clear:	8	14	3	25

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Table 69

Jack, 23m - Mother's Response

Function	Child's Utterances - Intonation Division			
	Falling	Rising	Level	Total
No Utterance	19	11	10	40
Positive Directive	2,1*	3		6
Information Comment	1	2	2	5
Didactic Question		5	1	6
Information Question	1*	3	1	5
Supportive	3	1		4
Opposive	2	1		3
Corrective	9	1		10
Affirmative	4		2	6
Affirmative Comment	2			2
Expressive Reaction	1			1
Challenge Logic	3	1	1	5
Challenge Judgement		1		1
Prohibitive Directive	1	2	1	4
Acknowledge	1	1		2
Clarification Seek	3		1	4
Repeat Affirm	1*	7*		8
Mock		1*		1
Thanks Child			1	1

Figures with an asterisk represent responses which contained an over attribution.

The mother's attribution categories do not relate to any one single intonation division, and, given the child's use of intonation division, apply equally to each division.

The mother's overt attribution of an Information Comment can be related to the rising division - 80%, and in particular the Simple rise. It must be observed however that only 20% of all Simple rises are responded to in this way. Nevertheless, the behaviour description does not highlight any particular basis for this differential response to intonation division and as such it would appear that the mother is using intonation division as the basis of this particular type of overt attribution.

The child uses a wider variety of intonation groups in the falling division than the rising, and overall, the mother's attribution categories are not related to particular intonation groups. The child uses a variety of pitch heights with the level shapes and the mother's attribution categories are not related to any one pitch height. The function of the mother's response can generally be related to more than one intonation division except where numbers are very small.

The most frequent response functions were the the Corrective, which was nearly always in response to a falling shape, and the Repeat Affirm, which was markedly connected with the rising division. The Affirmative, one of the next most popular response functions, was found only in response to falling and level shapes. The Didactic Question, another of the next most popular functions, was mostly related to the rising division.

Within the intonation divisions the mother's response function could not be related to a particular intonation group. Mother's response function was also not related to pitch height of the level shapes.

4.6.3 Jack, 23 months - Child's intonation form use and related utterance functions.

Table 70 shows the child's use of intonation division and intonation group. The child uses mostly falling shapes (44%) followed by rising (38%) and then level (18%).

The most frequently used intonation groups are the Simple rise and the Simple fall (33% and 26%). Content Clear utterances are found in all intonation divisions. Function Clear utterances, totalling 25, are found in all intonation divisions.Tables 71-73 show the child's Function Clear utterances related to intonation division and intonation group. Table 74 shows the pitch heights of the Function Clear level utterances.

There are only three types of Function Clear child utterances. The most frequent is the Information Comment, of which there are examples in each intonation division. 56% of the Information Comments are in the rising division. The other two functions of Model Repeat and Play are also found in more than one intonation division.

Within the falling division the utterance functions are not related to single intonation groups. Within the rising division all but 2 of the utterances are Simple rises (86%) and, as such, although the functions can be related to the Simple rise, the Simple rise is related to all 3 functions. The Information Comment is found with 2 intonation groups. The Function Clear level utterances are all Medium height. There are no pitch range and height patterns in the falling and rising utterance functions. Pitch range and height characteristics varied within intonation groups used with a particular utterance function, and identical characteristics appeared within intonation groups across utterance functions.

Table 70

Jack, 23m - Child Utterances and Intonation Shape

	Intonation Division			
Intonation Group	Falling	Rising	Level	
Simple	37(23)4	47(32)12		
Jump	12(12)2	5(3)2		
Large Jump	8(5)2	2(1)		
Marked Jump				
Slope	1(1)			
Undulating	5			
Total	63(41)8	54(36)14	25(11)3	142

(x) - A figure in brackets alongside a number represents Content Clear utterances within that number.

x - A figure underlined alongside a number represents Function Clear utterances within that number.

Table 71

Jack 23m - Child's Utterances Function Clear

Intonation Division

Function	Falling	Rising	Level	Total
Information Comment	5	9	2	16
Model Repeat	2	4		6
Play	1	1	1	3
	8	14	3	25

Table 72

Jack, 23m - Child's Utterances Function Clear

Falling Intonation Group

Function	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Information Comment	2	2	1				5
Play	1						1
Model Repeat	1		1				2
	4	2	2				8

Table 73

Jack, 23, - Child's Utterances Function Clear

	Rising Intonation Group						
Function	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Information Comment	7	2					9
Play	1						1
Model Repeat	4						4
	12	2					14

Table 74

Jack, 23m - Child's Utterances - Function Clear-Level Shape

	Height
Function	M
Information Comment	2
Play	1
	3

4.6.4 Jack, 23 months - Comparison of mother's and child's use of intonation form, and related utterance functions.

Mother and child show the same order of frequency of use of the falling, rising and level intonation division and in similar proportions (Table 75).

The most frequently used intonation groups within each intonation division are identical for mother and child (Table 76)

The child has 25 Function Clear utterances and, like the mother, does not relate utterance function to intonation division or intonation group in any simple manner.

The child has a single Play Function utterance in each division. Numbers in this function are very small for both mother and child but not correspondence of use is observed.

Table 77 shows the percentage use of intonation groups by the child and mother related to the functions used by the child.

The child's Function Clear utterances are contained in only 3 functions, the most frequently used being the Information Comment, of which the child has more examples than the mother. Although both mother and child use more than one intonation division for this function, the most frequently used division is different in either case. Additionally, although both mother and child use more than one intonation group, their most frequently used intonation groups are not in agreement. The child's next most frequent function is the Model Repeat which is a function which only applies to the child.

4.6.5 Jack, 23 months - Summary of findings on the intonation use of Jack and his mother.

1. The mother's utterances are mostly falling, followed by rising with few levels (54%, 36% and 10%).

Table 75 Percentage of Utterances in each Intonation Division

Jack, 23 m

	Intonation Division		
	Falling	Rising	Level
Mother	54	36	10
Child	44	38	18

Table 76 Percentage of Utterances in particular

Jack, 23m

Intonation Group	Intonation Groups: Mother	Child: All Utterances	Child: Function Clear
Simple Fall	18	26	16
Jump Fall	9	8	8
Large Jump Fall	6	6	8
Undulating Fall	16	4	-
Simple Rise	16	33	28
Jump Rise	7	4	8
Large Jump Rise	4	1	-
Undulating Rise	9	-	-
Level	10	18	12

Table 77 Comparison of percentage of use of intonation groups by mother and child in relation to the child's Function Clear utterances.

Jack,23m

Jack 23 m		Intonation Group				
Function		Simple Fall	Jump Fall	Large Jump Fall	Undulating Fall	Total Number of Utterances
Information - Comment	C	12	12	6		16
	M			15	38	13
Play -	C	33				3
	M					2

		Simple Rise	Jump Rise	Large Jump Rise	Undulating Rise	
Information - Comment	C	44	12			16
	M	8	8		31	13
Play -	C	33				3
	M		50			2

		Level Height			
		ML	M		
Information - comment	C		12		16
	M				13
Play -	C		33		3
	M	50			2

The figure in the totals column represents the total number of utterances in that function category over all intonation divisions.

2. The most frequently used intonation groups are the Simple fall and the Simple rise, and the Undulating fall (18%, 16% and 16%)

3. The mother does not relate utterance function to intonation division or intonation group in any simple manner.

4. The mother's attribution categories are influenced by the intonation division of the child's utterances, with overt attribution of an Information Comment being related to the rising division.

5. The mother's response functions are influenced by the intonation divisions of the child's utterances with Correctives being related to the falling division and Repeat Affirmatives with the rising.

4. The child uses mostly falling shapes, followed by rising and then level (44%, 38% and 18%).

7. The child's most frequently used intonation groups are the Simple rise and the Simple fall (33% and 26%).

8. The child's most frequently used Function Clear intonation group is the Simple rise (28%).

9. The child does not relate utterance function to intonation division or intonation group in any simple manner.

4.7 The intonation use of Jack and his mother, at 25 months

4.7.1, Jack, 25 months - Relating mother's intonation form use with her utterance functions

Table 78 (Appendix III) shows the mother's utterance functions related to intonation division. The mother's utterances are mostly falling (60%), followed by rising (34%), with few levels (6%).

Table 78 (abridged)

Jack, 25m - Mother's Utterances

	Intonation Division			
Function	Falling	Rising	Level	Total
Positive Directive	24	7	4	35
Information Comment	18	8		26
Didactic Question	6	9		15
Information Question	6			6

Table 79 (abridged)

Jack, 25m - Mother's Utterances Falling

	Intonation Group					
	Simple Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	6	5	4		9	24
Information Comment	1	3	2	1	11	18
Didactic Question		3			3	6
Information Question		1	4		1	6

The most frequently used function is the Positive Directive, followed by the Information Comment and then Supportives and Didactic Questions.

In most functions, except where numbers are very small, the mother uses more than one intonation division and division and correspondingly each intonation division is used with a variety of functions. It is noteworthy however that Information Questions, Expressive Reactions and Didactic Models are associated only with the falling division.

Positive Directives and Information Comments show a marked tendency to fall, 68% and 69% respectively.

Success markers are mostly associated with the rising division.

Tables 79-81 (Appendix III) show the intonation group details of the falling and rising shapes and their pitch range and height characteristics, and the pitch heights of the level shapes.

The most frequently used intonation groups are the Simple fall, the Simple rise and the Undulating fall (20%, 20% and 19%).

The mother uses more than one intonation group in connection with utterance functions except where numbers are very small. Correspondingly most intonation groups are used with a variety of functions.

Range and height characteristics, presented as totals for each function, show both variation within intonation groups related to function, and were often identical across functions.

Certain observations can be made on the relationship of function to intonation group.

Table 80 (abridged)

Jack, 25m - Mother's Utterances

Rising Intonation Group

Function	Simple	Jump	Large Jump1	Marked Jump	Slope	Undulating	Total
Positive Directive	1	3				3	7
Information Comment	2	1				5	8
Didactic Question	5	2			1	1	9
Information Question							

Table 81 (abridged)

Jack, 25m - Mother's Utterances

Level Intonation Division

Function	L	ML	M	MH	H	Total
Positive Directive		2	1	1		4
Information Comment						
Didactic Question						
Information Question						

Positive Directives

68% of Positive Directives were falling, 20% rising and 11% level.

Falling Positive Directives were mostly Undulating (38%).

Rising Positive Directives were mostly either Jump rises or Undulating (43% and 43%).

Information Comments

69% of Information Comments were falling, and 31% rising.

Falling Information Comments were mostly Undulating (61%).

Rising Information Comments were mostly Undulating (62%).

Didactic Questions

60% of Didactic Questions were rising, and 40% falling.

Falling Didactic Questions were equally Jump falls or Undulating.

Rising Didactic Questions were mostly Simple rises (56%).

Information Questions

All Information Questions were falling. 67% of these were Large Jump falls.

Success Markers

90% of all Success Markers were rising and of these 89% were Simple rises.

4.7.2 Jack, 25 months - Mother's attribution of meaning and responses to the intonation shape used by the child.

Table 82 shows the mother's attribution of meaning in respect of the child's utterance intonation divisions. Tables 82a - 82c (Appendix IV) show the mother's attribution in respect of the intonation groups used by the child within these divisions, and to the pitch heights of the level utterances.

Table 83 shows the function of the mother's response to the intonation divisions of the child's utterances, and Tables 83a - 83c (Appendix IV) show the mother's responses to the intonation groups of the child and to the pitch heights of the level shapes.

The mother's attribution categories do not relate to any one single intonation division. Given the child's differential use of the divisions it seems there is a slightly greater tendency to 'respond' to level shapes with No Utterance. Within the falling division the child uses mostly Simple falls. Where an intonation group other than a Simple fall is used by the child this tends to be responded to with an utterance containing a Non Overt attribution. In the rising division the mother's attribution does not appear to be related to intonation group. Mother's attribution does not relate also to either the pitch height of the level shapes or to clarity of utterance content in general.

The function of the mother's response can be related to more than one intonation division, except where numbers are very small.

Frequency of response function is fairly evenly spread amongst various functions, however the most frequently used are the Positive Directive, the Information Comment and the Affirmative. These response functions are not related to intonation division.

Within the intonation divisions the mother's response function could not be related to a particular intonation group, or to the pitch height of the level shapes.

Table 82

Jack, 25m - Mother's Attribution

Child's Utterances - Intonation Division

Attribution	Falling	Rising	Level	Total
No Utterance	5	4	4	13
Intervening Event	1		1	2
Non Overt	21	15	5	41
Attribution:				
Information Comment	3	1	1	5
	30	20	11	61
Child's Utterances Function Clear:	19	5	4	28
				89

Table 83

Jack, 25m - Mother's Response Child's Intonation Division

Function	Falling	Rising	Level	Total
No Utterance	5	4	4	13
Positive Directive	3,1*	2		6
Information Comment	3	2		5
Didactic Question				
Information Question				
Supportive	3	1		4
Opposive	2	1		3
Corrective	1	2	1	4
Corrective Comment	2	1	1*	4
Corrective Information Comment	2			2
Affirmative	2	2	1	5
Expressive Reaction			1	1
Prompt	1			1
Dialogue Device	1*			1
Clarification Seek	1			1
Expressive + Opposive			1	1
Laughter	1	1	1	3
Appropriateness Repeat	1*			1
Corrective + Info Comment			1*	1
Readiness Marker		1		1
Repeat Affirm		1		1
Encourage		1		1

Figures with an asterisk represent responses which contained an overt attribution.

4.7.3 Jack, 25 months - Child's intonation form use and related utterance functions.

Table 84 shows the child's use of intonation division and intonation group.

The child uses mostly falling shapes (55%) followed by rising (28%) and then level (16%).

The most frequently used intonation groups are the Simple fall and the Simple rise (33% and 20%). Content Clear utterances are found in all intonation divisions and most intonation groups. Function Clear utterances, numbering 28, are found in all intonation divisions and most intonation groups.

Tables 85-87 show the child's Function Clear utterances related to intonation division and intonation group. Table 88 shows the pitch heights of the Function Clear level utterances.

The majority of Function Clear utterances are in the falling intonation division.

There are five types of Function Clear utterances. The most frequent are the Information Comment and the Model Repeat of which there are examples in each intonation division. The next most frequent function is the Information Question, all examples of which are in the falling division.

Within the intonation divisions, functions are not related to particular intonation groups, although both examples of the falling slope are Information Questions.

The majority of the Function Clear level utterances are at Medium Low.

There are no pitch range and height patterns in the falling and rising utterance functions. Pitch range and height characteristics varied within intonation groups used with a particular utterance function, and identical characteristics appeared within intonation groups across utterance functions.

Table 84

Jack, 25m - Child's Utterances + Intonation Shape

Intonation Division

Intonation Group	Falling	Rising	Level	
Simple	30(22)8	18(12)4		
Jump	2	4(4)		
Large Jump	6(5)4	3(1)1		
Marked Jump				
Slope	5(5)3			
Undulating	6(6)4			
Total	49(38)19	25(17)5	15(13)4	89

(x) - A figure in brackets alongside a number represents Content Clear utterances within that number.

x - A figure underlined alongside a number represents Function Clear utterances within that number.

Table 85

Jack, 25m - Child's Utterances Function Clear

	Intonation Division			
Function	Falling	Rising	Level	Total
Information Comment	6	3	1	10
Information Question	5			5
Affirmative			1	1
Expressive Reaction	1		1	2
Model Repeat	7	2	1	10
	19	5	4	28

Table 86

Jack, 25m - Child's Utterances - Function Clear Falling

	Intonation Group					
Function	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive							
Information Comment	2		2			2	6
Didactic Question							
Information Question	2				2	1	5
Expressive Reaction			1				1
Model Repeat	4		1		1	1	7

Table 87

Jack, 25m - Child's Utterances - Function Clear Rising

Function	Intonation Group				
	Simple Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Information Comment	2	1				3
Model Repeat	2					2

Table 88

Jack, 25m - Child's Utterances - Function Clear Levels

Function	Pitch Height					
	L	ML	M	MH	H	Total
Information Comment		1				1
Affirmative		1				1
Expressive Reaction			1			1
Model Repeat		1				1

4.7.4 Jack, 25 months - Comparison of mother's and child's use of intonation form, and related utterance functions.

Mother and child show very similar overall frequencies of use of the falling, rising and level divisions (Table 89).

The most frequently used intonation groups are identical for mother and child (Table 90).

The child has 28 Function Clear utterances and, like the mother, does not relate intonation division or intonation group or utterance function in any simple manner.

Table 91 shows the frequency of intonation groups used by the child and the mother in relation to the functions used by the child.

The child's Function Clear utterances are divided amongst 5 functions, the most popular being the Information Comment and the Model Repeat.

In the Information Comment function the child's use of intonation division has altered from the previous session to be predominately falling, which is the same as the mother's use. The child does not use identical intonation groups to the previous session and in particular has started to use the Undulating fall which is the mother's most frequently used intonation group overall for this function. In the Information Question both mother and child use only the falling division and 3 intonation groups within this, but the spread of intonation groups used in each case is not in agreement.

4.7.5 Jack, 25 months - Summary of findings on the intonation use of Jack and his mother.

1. The mother's utterances are mostly falling, followed by rising, with few levels (60%, 34% and 6%).

Table 89

Jack, 25m — Percentage of Utterances in each Intonation Division

	Falling	Rising	Level
Mother	60	34	6
Child	55	28	16

Table 90

Jack, 25m — Percentage of Utterances in particular Intonation Groups

	Mother	Child	
Intonation Group		All Utterance	Function Clear
Simple Fall	20	33	28
Jump Fall	10	2	-
Large Jump Fall	7	7	14
Undulating Fall	19	7	14
Simple Rise	20	20	14
Jump Rise	6	4	-
Large Jump Rise	1	3	4
Undulating Rise	8	-	-
Level	6	16	14

Table 91

Jack, 25m Comparison of Percentage of Use of Intonation Groups by the Mother and Child in Relation to the Child's Function Clear Utterances

Function	Simple Fall	Jump Fall	Large Jump Fall	Slope Fall	Undulating Fall	Total number of utterances
Information						
Comment - C	20		20		20	10
M	4	12	8	4	42	26
Information						
Question - C	40			40	20	5
- M			17	67	17	6
Expressive						
Reaction - C			50			2
- M	75				25	4

The figure in the totals column represents the total number of utterances in that function category over all intonation divisions.

Table 91 (continued)

Jack, 25m

	Simple Rise	Jump Rise	Large Jump Rise	Undulating Rise	Total No. of Utternances
Information					
Comment- C	20		10		10
- M	8	4		19	26

Table 91 (continued)

Jack, 25m

	Level Height		
	ML	M	
Information			
Comment- C	10		10
- M			26
Affirmative			
- C	100		1
- M		33	6
Expressive			
Reaction- C		50	2
- M			4

The figure in the totals column represents the total number of utterances in that function category over all intonation divisions.

2. The mother's most frequently used intonation groups are the Simple fall, the Simple rise and the Undulating fall (20%, 20% and 19%).

3. The mother does not relate utterance function to intonation division or intonation group in any simple manner, although all Information Questions are falling.

4. The mother's attribution categories are influenced by the intonation division of the child's utterances.

5. The mother's response functions are not influenced by the intonation divisions of the child's utterances.

6. The child uses mostly falling shapes, followed by rising and then level (55%, 28% and 16%).

7. The child's most frequently used intonation groups are the Simple fall and the Simple rise (33% and 20%).

8. The child's most frequently used Function Clear intonation group is the Simple fall (28%).

9. The child does not relate utterance function to intonation division or intonation group in any simple manner, although all Information Questions are falling.

4.8 The intonation of Jack and his mother, at 28 months.

4.8.1 Jack, 28 months - Relating mother's intonation form use with her utterance functions.

Table 92 (Appendix III) relates the mother's utterance function with intonation division. The mother uses mostly falling shapes (60%), followed by rising shapes (37%) with few levels (3%). The most frequently used function is the Information Comment, and then the Positive Directive, the Didactic Question and the Affirmative.

Table 92 (abridged)
Jack, 28m - Mother's Utterances

Function	Intonation Division			
	Falling	Rising	Level	Total
Positive Directive	16	5		21
Information Comment	27	14		41
Didactic Question	10	8		18
Information Question	4	3		7

Table 93 (abridged)
Jack, 28m - Mother's Utterances

Function	Falling Intonation Group					
	Simple	Jump	Large Jump	Slope	Undulating	Total
Positive Directive	8	4	1		3	16
Information Comment	2	3	5		17	27
Didactic Question	1	3	3		3	10
Information Question	1	1			2	4

Table 94 (abridged)
Jack, 28m - Mother's Utterances

Function	Rising Intonation Group					
	Simple	Jump	Large Jump	Slope	Undulating	Total
Positive Directive		1	1		3	5
Information Comment	3	5	1		5	14
Didactic Question	2	2	1	3		8
Information Question			1			1

In all the major utterance functions and most others, except where numbers are very small, the mother uses more than one intonation division. Each utterance division is used with a variety of functions. In the major functions the use of the falling division predominates. Affirmatives, however, are mostly in the rising division and, to a lesser extent, the level.

Tables 93-95 (Appendix III) show the intonation group details of the falling and rising shapes with their pitch range and height characteristics, and the pitch heights of the level shapes.

The most frequently used intonation groups were the Undulating fall, the Simple fall and the Simple rise (19%, 18% and 16%).
The mother used a variety of intonation groups with most functions. Correspondingly, the more frequently used intonation groups were used with a variety of functions. Rising Affirmatives were without exception Simple rises although variations in pitch range and height were contained within this.

Pitch range and height characteristics, presented as totals for each function, showed both variation within intonation groups related to a function, and were often identical across functions. Rising Undulating Information Comments were all Large range and their lowest pitch height was Low, where rising Undulating Positive Directives were all Large range with a lowest pitch height of Medium Low. Identical shapes, however, in both cases are found with other functions. Rising Information Comments in any intonation group predominately rise from a Low pitch height. In the level division only Medium Low and Medium pitch heights are used.

Certain observations can be made on the relationship of function to intonation shape in the mother's utterances.

Positive Directives

There were three times as many falling to rising Positive Directives (76% and 24%).

The most frequent falling intonation group was the Simple fall, containing 50% of the falling Directives.

The rising Directives were fewer in number but over half were Undulating.

Information Comments

There were twice as many falling to rising Information Comments (66% and 34%).

The most frequent falling intonation group was Undulating (63%) and the most frequent rising were the Jump rise and the Undulating (each 36%).

Didactic Questions

There was an almost equal number of falling and rising Didactic Questions. In each division 4 intonation groups were used but numbers were fairly evenly spread amongst those. The rising Slope was the most frequent rising intonation group and it is noteworthy that the didactic Question is the only single function with which this intonation group is used.

Affirmatives

There were markedly more rising Affirmatives (73%) than level (20%) or falling (7%).

All rising Affirmatives were Simple rises.

Level Affirmatives were at both the Medium Low and the Medium pitch heights.

4.8.2 Jack, 28 months - Mother's attribution of meaning and responses to the intonation shape used by the child.

Table 96 shows the mother's attribution of meaning in respect of the child's utterance intonation divisions. Tables 96a-96c (Appendix IV) show the mother's attribution in respect of the intonation groups used by the child within these divisions, and to the pitch height of the level shapes.

Table 96

Jack, 28m - Mother's Attribution

	Child's Utterances			
	Intonation Division			
Attribution	Falling	Rising	Level	Total
No Utterance	17	10	9	36
Intervening Event	1		6	7
Non Overt	34	4	5	43
Attribution:				
Information Comment	5	1		6
Information Question	1			1
	68	15	20	93
Child's Utterances				
Function Clear:	44	13	5	62
				155

Table 97 shows the mother's response functions to the child's utterance intonation divisions, and Tables 97a-97c (Appendix IV) show the mother's responses and to the intonation groups used and to the pitch heights of the level shapes.

The mother's attribution categories can be related to all intonation divisions. There is a greater tendency to respond with No Utterance to rising shapes (66%) and level shapes (45%) than to falling shapes (25%). Correspondingly there is a greater tendency to respond with some kind of utterance to falling shapes (59%) than to rising (33%) or level (25%). Also, there is a disproportionately high number of Intervening Events associated with the level shape - 86% of all Intervening Events and 30% of all level shapes.

The falling division predominates in those utterances of the mother in which the attribution of meaning is obvious.

In the falling and rising divisions the mother's attribution categories are not related to any one intonation group. No pattern emerges in the mother's attribution related to the pitch height of the level utterances. The Intervening Event category contains mostly short utterances by the child which are synchronous with a long utterance by the mother.

The child uses many more falling to rising or level shapes and, in the non-Function Clear utterances to which the mother responds with an utterance there are 4 times as many falling utterances of the child as rising and level utterances added together. As such, the mother's response functions tend to relate mostly to the falling division. The most frequently used response function is the Affirmative and this is found with both falling and rising utterances. The next most frequent response functions are the Information Comment and the Corrective. The Information Comment is related to both the falling and rising divisions. The Corrective is found only with the falling division.

Table 97

Jack, 28m - Mother's Response

Response Function	Child's Utterances Intonation Division: Falling	Rising	Level	Total
No Utterance	17	10	9	36
Positive Directive	1			1
Information Comment	4	1		5
Didactic Question	1			1
Information Question				
Supportive	1		1	2
Corrective	5			5
Corrective Comment	1			1
Corrective Information Comment	3			3
Affirmative	9	3		12
Affirmative Comment			1	1
Didactic Model	2			2
Corrective Prompt	1			1
Check Message	2			2
Dialogue Device	1			1
Acknowledge Question	1		1	2
Acknowledge	1			1
Clarification Seek		1		1
Pinpoint + Info Comment	1			1
Repeat Affirm	3			3
Laughter	1			1
Allows Answer	1			1
Mock			1	1
(Question Form Unfinished)	1		1	
Expressive & Didactic Question		1	1	

Within the falling division the response functions are related to more than one intonation group where numbers are greater than 2. The exception to this is the Corrective function which, in all cases, is in response to a Simple fall. All intonation groups used more than once are connected with more than one response function.

Within the rising division numbers are very few and no particular relationship of response function and intonation group emerged. Similarly numbers are too few for patterns to emerge between response function and pitch height of the level shapes.

4.8.3 Jack, 28 months - Child's intonation form use and related utterance functions.

Table 98 shows the child's use of intonation division and intonation group. The child uses 4 times as many falling shapes (66%) as rising or level, which are used about equally (18% and 16%). In the falling division the child is using all of the possible intonation groups. In the rising division the child is using all but the Marked Jump intonation group.

The most frequently used intonation groups are the Simple fall, the Undulating fall, the Jump fall and the Simple Rise (22%, 12%, 11% and 8%).

Content Clear and Function Clear utterances are found in all intonation divisions, although to a lesser extent in the level.

Tables 99-101 show the child's 62 Function Clear utterances related to intonation division and intonation group. Table 102 shows the pitch heights of the level Function Clear utterances.

The child does not relate utterance function to any one intonation division, except where numbers are small.

Table 98

Jack, 28m : Child's Utterances + Intonation Shape

	Intonation Division			
Intonation Group	Falling	Rising	Level	
Simple	49(39)20	13(10)7		
Jump	17(14)9	4(4)1		
Large Jump	12(9)3	7(6)3		
Marked Jump	1(1)			
Slope	5(4)2	1(1)1		
Undulating	18(17)10	3(3)1		
			25(12)5	
Total	102(84)44	28(24)13	25(12)5	155

(x) - A figure in brackets alongside a number indicates Content Clear utterances within that number.

x - A figure underlined alongside a number indicates Function Clear utterances within that number.

Table 99
Jack, 28m - Child's Utterances - Function Clear

Function	Intonation Division: Falling	Rising	Level	Total
Positive Directive	2		1	3
Information Comment	16	4		20
Didactic Question				
Information Question	13	5		18
Affirmative	6		2	8
Expressive Reaction		1	1	2
Prohibitive Directive	1	1		2
Agreeing		1		1
Play	2	1		3
Acknowledge Question	1			1
Model Repeat	3			3
Compliance Marker			1	1
	44	13	5	62

Table 100
Jack, 28m - Child's Utterances - Function Clear

Function	Falling Intonation Group: Simple	Jump	Large Jump	Slope	Undulating	Total
Positive Directive	1				1	2
Information Comment	3	4		2	7	16
Didactic Question						
Information Question	6	4	3			13
Affirmative	6					6
Check Message						
Prohibitive Directive		1				1
Acknowledge Question	1					1
Play	1				1	2
Model Repeat	2				1	3
	20	9	3	2	10	44

Table 101
Jack, 28m - Child's Utterances - Function Clear

Function	Rising Intonation Group: Simple	Jump	Large Jump	Slope	Undulating	Total
Positive Directive						
Information Comment		1	3			4
Didactic Question						
Information Question	4				1	5
Expressive Reaction	1					1
Prohibitive Directive				1		1
Agreeing	1					1
Play	1					1
	7	1	3	1	1	13

Table 102
Jack, 28m - Child's Utterances - Function Clear

Function	Level Division Pitch Height: L	ML	M	MH	H	Total
Positive Directive			1			1
Affirmative	1	1				2
Expressive Reaction			1			1
Compliance Marker	1					1
	2	1	2			5

The most frequently used functions are the Information Comment, the Information Question and the Affirmative. There are markedly more falling than rising Information Comments and Information Questions. It is noteworthy that no rising shapes are used with the Affirmative function.

Within the falling and rising divisions more than one intonation group is used with the more frequently used functions of Information Comment and Information Question. All falling Affirmatives are Simple falls.

The most frequently used intonation groups in the Function Clear utterances are the Simple fall, the Undulating fall, the Jump Fall and the Simple rise (32%, 16%, 14% and 11%). The pitch height of the level utterances is Medium or lower and use is evenly spread across these.

Pitch range and height characteristics varied within intonation groups used with a particular utterance function, and identical characteristics appeared within intonation groups across utterance functions. Five of the six Simple fall Affirmatives were of Moderate range, falling from a Medium Low height. This identical shape, however, was also found with the Acknowledge Question and Information Comment functions. Three of the four Simple rise Information Questions were of Large range, rising from a height of Medium Low. This particular rising intonation shape was found only with the Information Question utterance function.

The following observations may be made of the child's intonation use related to function.

Information Comment

There are 4 times as many falling to rising Information Comments (80% and 20%).

The most frequently used falling intonation group is the Undulating fall (44%).

The most frequently used rising intonation group is the Large Jump rise (75%). This is the only function for which this intonation group is used.

Information Question

There are over twice as many falling to rising Information Questions (72% and 28%).

The most frequently used falling intonation group is the Simple fall (46%).

Four out of the five rising Information Questions are Simple rises.

Affirmatives

There are 3 times as many falling to level affirmatives (75% and 25%).

All falling Affirmatives are Simple falls.

4.8.4 Jack, 28 months - Comparison of mother's and child's use of intonation form, and related utterance functions.

Both mother and child use the falling intonation division most frequently - 60% and 66% respectively (Table 103).

Mother and child use an almost identical set of intonation groups most frequently but not in the same order of frequency. The child's most frequent Function Clear intonation groups are the same as those used most frequently overall (Table 104).

Both mother and child display a variety of intonation group use, from more than one intonation divisions, in respect of utterance functions, except where numbers are small.

Table 105 shows the frequency of use of intonation group by child and mother in relation to the functions used by the child.

Table 103 Percentage of Utterances in each Intonation Division

Jack, 28m

	Falling	Rising	Level
Mother	60	37	3
Child	66	18	16

Table 104 Percentage of Utterances in particular Intonation Groups

Jack, 28m

	Mother	Child	
Intonation Group		All Utterances	Function
Clear			
Simple Fall	18	22	32
Jump Fall	9	11	14
Large Jump Fall	9	8	5
Undulating Fall	19	12	16
Simple Rise	16	8	11
Jump Rise	8	2	2
Large Jump Rise	3	4	5
Undulating Rise	8	2	2
Level	3	16	8

Table 105 Comparison of Percentage of Use of Intonation Groups by the Mother and Child in Relation to the Child's Function Clear Utterances.

Jack, 28m

	Intonation Group					
Function	Simple Fall	Jump Fall	Large Jump Fall	Slope Fall	Undulting Fall	Total number of utterances
Positive -C	33				33	3
Directive-M	38	19	5		14	21
Information						
Comment -C	15	20		10	35	20
-M	5	7	12		41	41
Information						
Question-C	33	22	16			18
-M	20	20			40	5
Affirmative						
-C	75					8
-M	7					15
Prohibitive						
Directive-C		50				2
-M						-
Acknowledge						
Question -C	100					1
-M						-
Play -C	33				33	3
-M					25	4

The figure in the totals column represents the total number of utterances in that function category over all intonation divisions.

Table 105 (cont'd)

Jack, 28m		Simple Rise	Jump Rise	Large Jump Rise	Slope Rise	Undulating Rise	Total number of utterances
Function							
Information							
Comment	- C		5	15			20
	- M	7	12	2		12	41
Information							
Question	- C	22				6	18
	- M			20			5
Expressive							
Reaction	- C	50					2
	- M						1
Prohibitive							
Directive	- C				50		2
	- M						-
Agreeing	- C	100					1
	- M						1
Play	- C	33					3
	- M	25	25			25	4

Table 105 (cont'd)

Jack, 28m		Level Height				Total number of utterances
		L	ML	M	MH	
Positive Directive						
	- C			33		3
	- M					21
Affirmative						
	- C	12	12			8
	- M		13	7		15
Expressive						
Reaction	- C			50		2
	- M					1
Compliance						
Marker	- C	100				1
	- M					-

Both mother and child use the falling division predominately.

Looking at the most frequently used intonation groups in respect of particular functions it can be seen that both mother and child favour the Undulating fall in relation to Information Comments. For the mother 41% of all Information Comments are Undulating falls, and for the child 35%. With the child having a large number of Information Comments it was possible to see how the child's use of intonation group related to the propositional content and other contextual features of the utterance. Table 106 outlines the details of the propositional content and context related to intonation group. It can be seen that, like the mother, the child does not associate a particular type of propositional content with a particular intonation group.

After Information Comments the child's most frequently used function is the Information Question. In this session the mother uses too few of these to allow easy comparison, however, and only some correspondence of use of intonation groups is shown. It is noteworthy, however, that the child does not use the Undulating fall for this function which is the most frequently used in this session by the mother, albeit out of a small total, and has been the most frequently used by the mother in an earlier session. Thus, although a marked relative increase in the use of the Undulating fall can be seen in the child's use with Information Comments, which corresponds with the mothers use, this increase in use does not spread across to all functions, even those in which it is used fairly frequently by the mother.

The child uses the Affirmative function quite frequently and in this function the child's intonation use and that of the mother are not in agreement, with the child using predominately the falling division and the rising not at all, where the mother uses the rising division predominately. On the one occasion when the mother uses the falling division for this function the intonation group used is the same as that used by the child for all falling Affirmatives.

Table 106 Detailed Analysis of Child's Information Comments

Jack, 28m

Detail analysis of Information Comments: Falling

Simple Fall

M	ML	:	description of child's action on object
M	ML	:	comment on inability to do action + child shaking head
M	M	:	colour term

Jump Fall

M	M	:	description of future action of object
M	MH	:	identity of object
M	MH	:	identity of object
L	M	:	description of object state + child shaking head

Slope Fall

M	M	:	description of own action attempt
M	M	:	comment on inability to do action

Undulating Fall

M	MH	:	description of object state
M	H	:	attribute lack of interest
L	M	:	object not functioning on 2nd object
L	MH	:	position of object within object
L	MH	:	description of object state
L	MH	:	identity of object
L	MH	:	identity of object and location for object

Detail analysis of Information Comments: Rising

Jump Rise

M	L	:	comment on inability to do action

Large Jump Rise

L	L	:	identifying agent of noise
L	L	:	identity of object
L	M	:	identity of object

In the level division mother and child's use is similar, in so far as neither uses a pitch height higher than Medium.

4.8.5

Jack, 28 months - Summary of findings on the intonation use of Jack and his mother.

1. The mother uses more falling than rising shapes and few levels (60%, 37% and 3%).

2. The mother's most frequently used intonation groups were the Undulating fall, the Simple fall and the Simple rise (19%, 18% and 16%).

3. The mother does not relate utterance function to intonation division or intonation group in any simple manner.

4. Whether or not the mother responds with an utterance to an utterance of the child can be related to the intonation division of the child's utterance.

5. The function of the mother's response may in some cases be influenced by the intonation division of the child's utterance with Correctives being related to the falling division.

6. The child uses mostly falling shapes and then rising and level shapes about equally (66%, 18% and 16%).

7. The child's most frequently used intonation groups are the Simple fall and the Undulating fall (22% and 12%).

8. The child's most frequently used Function Clear intonation groups are the Simple fall and the Undulating fall (32% and 16%).

9. The child does not relate utterance function to intonation division or intonation group in any simple manner.

10. In certain cases the child's use of intonation division and most frequently used intonation group in respect of an utterance function is identical to the mother's, but on other occasions the mother's and child's use of intonation is not in agreement.

4.9 Comparison of the intonation use of Jack and his mother at 20 months, 23 months, 25 months and 28 months.

Over all 4 sessions the mother's intonation use is seen to be complex. Utterance functions are generally related to more than one intonation division and often a variety of intonation groups. Pitch range and height characteristics did not differentiate amongst functions.

Further analysis of propositional content, discourse status, grammatical form, behavioural context and pragmatic context indicated that not one of these measures could account for the variation in the mother's intonation use.

Throughout the 4 sessions the mother always used the falling division most frequently overall, with few levels.

In each of the first 3 sessions the mother's most frequently used intonation groups are the Simple fall and the Simple rise and in the fourth, the Simple fall and the Undulating fall. The most frequently used intonation groups in respect of particular functions show only a certain systematicity. In both the falling and rising divisions the Undulating intonation group is consistently used most frequently, or jointly most frequently, in respect of the Information Comment. The Undulating rise is also consistently used most frequently, or jointly most frequently, with rising Positive Directives over the 4 sessions. The Simple fall is most frequently used with falling Positive Directives in 3 of the 4 sessions. The Clarification Seek is almost exclusively related to the rising division and the Simple rise.

The analysis of the mother's attribution and response over the sessions does not present a straightforward picture. In the first session the mother responds to a markedly higher percentage of falling utterances with No Utterance, however this is not seen in the subsequent sessions, and in the last session falling utterances receive the lowest percentage of No Utterance responses. In the second session the mother overtly attributes an Information Comment most frequently to rising utterances, however in the last session this attribution is made most frequently to falling utterances.

The function of the mother's response does not relate consistently to the intonation of the child over the four sessions. In the first session, Affirmatives are related to rising utterances of the child. In the second session, Affirmatives are related only to falls and levels with Repeat Affirm being associated with rising utterances. In the third and fourth sessions, the Affirmative is related to both falling and rising utterances. Positive Directives in the first session seemed associated with level utterances but this was not found in the following sessions. The Information Comment was a frequent response in the third and fourth sessions but was related to both the falling and rising divisions. The Corrective was associated particularly to the falling division in the second and fourth sessions, but not in the third, where it related to all divisions favouring slightly the rising.

The child's overall use of falling, rising and level shapes shows a shift from the first session, where levels and rises are used most frequently, to the subsequent sessions where falls are the most frequently used, followed by rises. Despite this, the child's most frequently used intonation groups are identical in the first 3 sessions. In the last session falling intonation groups are used most frequently.

The child's Function Clear utterances increase dramatically in number over the four sessions from 2 to 25 to 28 to 62. The Simple fall is the most frequently used Function Clear intonation group in all but the second session where the Simple rise is more frequent. In the second session the child uses mostly rises for the

Information Comment function, but in the following sessions uses the falling division more frequently for this function. The intonation groups used vary over the sessions. In the third session, Function Clear utterances are found with the functions of Information Question and Affirmative and these are found with more frequency in the fourth session. In the third session, the child uses the falling division exclusively for the Information Question. In the fourth session, although the falling division predominates, the rising division is also used for this function. The variety of intonation groups used in the falling division in each session is slightly different. The Affirmative initially found with the level division uses both the falling and level in the fourth session.

Table 107 shows the frequency of use of intonation division by the mother and child over 4 sessions. In the first session the mother and child do not share the same ordering of frequency of use of the falling, rising and level divisions. In the subsequent sessions however their frequency of use is very similar.

Table 108 shows the frequency of use of intonation group for mother and child over the 4 sessions. The most frequently used intonation groups are identical for mother and child over the first 3 sessions. In the last session however, although both mother and child use the same 4 intonation groups most frequently they do so in a slightly different order. The mother for the first time uses the Undulating fall most frequently, but for the child this is the second most frequent group, with the Simple fall remaining most frequent. For the mother the Undulating fall has always been the next most popular intonation group after the Simple fall and rise, increasing gradually in use over the sessions, and the child's use of this shape shows a consistent increase over the sessions, both overall and in the Function Clear utterances.

The mother uses the Simple rise at a consistently high frequency throughout the sessions, but the child's use of this shape drops dramatically over the sessions both in overall use and with the Function Clear utterances. The child's frequency of use of the other intonation groups is generally more varied than the mother's.

Table 107

Percentage of Utterances in each Intonation Division for Mother and Child

Jack 20m, 23m, 25m and 28m

Intonation Division	Mother C's age in months				Child Age in months			
	20	23	25	28	20	23	25	28
Falling	62	54	60	60	20	44	55	6
Rising	26	36	34	37	30	38	28	18
Level	12	10	6	3	49	18	16	16

Table 108

Jack 20m, 23m, 25m and 28m

Percentage of Utterances in particular Intonation Groups

Intonation Group	Mother C's age in months				Child All Utterances Age in months				Child Function Clear Age in months			
	20	23	25	28	20	23	25	28	20	23	25	28
Simple Fall	38	18	20	18	13	26	33	22	100	16	28	32
Jump Fall	10	9	10	9	4	8	2	11	-	8	-	14
Large Jump Fall	5	6	7	9	1	6	7	8	-	8	14	5
Undulating Fall	10	16	19	19	1	4	7	12	-	-	14	16
Simple Rise	11	16	20	16	25	33	20	8	-	28	14	11
Jump Rise	6	7	6	8	3	4	4	2	-	8	-	2
Large Jump Rise	2	4	1	3	-	1	3	4	-	-	4	5
Undulating Rise	5	9	8	8	1	-	-	2	-	-	-	2
Level	12	10	6	3	49	18	16	16	-	12	14	8

It is noteworthy that where the mother uses the Undulating rise with as much frequency as the Large Jump fall and more than the Jump rise, the child although using both the latter at a similar frequency to the mother, uses very few Undulating rises at all.

From the second session onwards, it can be seen that, like the mother, the child does not relate utterance function to intonation division or intonation group in any simple manner. In the second session the child's particular use of intonation division and group does not bear much resemblance to the mother's, where comparisons can be made. By the third session however, certain correspondences of intonation division and group use can be observed where there had been lack of agreement, particularly in the Information Comment function, and in the fourth session the correspondence is particularly clear for this function. Also in the fourth session, however, is the example of the intonation use with the Affirmative function which is quite different for mother and child. It should be noted, however, that this is the first session in which the mother has shown such a predominance of use of the rising division for the Affirmative, although it has generally always been favoured, and indeed was the only division used for the few Affirmatives in the second session. In the first session, however, the mother used the falling and level divisions for the 2 examples of the Affirmative function.

4.10 Comparison of the findings on intonation use for Jack and Jill and their mothers.

The mothers' use of the intonation in both mother-child pairs shows a marked similarity. Both mothers exhibit a complex pattern of use in which more than one intonation division is generally related to an utterance function and a variety of intonation groups used within these in respect of a function. In neither case did pitch range or height systematically differentiate amongst functions. In addition, in both cases it was found that the variation in intonation use could not be accounted for by further analysis of content and context. Where systematicity of use did exist, however, it is notable that it is almost identical in each mother. Both mothers

consistently used certain intonation groups most frequently over their sessions with Jack, 28 months, differing slightly, and in each case these groups were the Simple fall and the Simple rise, except in Jack, 28 months, where the Undulating fall was most frequent. Both mothers consistently used the Undulating rise intonation group most frequently with rising Information Comments, and the Simple fall most frequently over all sessions with falling Positive Directives. Both mothers used the Simple rise with almost all of the examples of the Clarification Seek function.

The mothers responded in different ways to the utterances of their children. The mother of Jack showed certain apparent associations between a particular utterance function and a particular intonation shape in individual sessions but these associations were not upheld over the four sessions and in general this mother's response functions cannot be related to the intonation division or group of the child's utterance.

The mother of Jill showed a different pattern of response, where associations can be made, although not in the same way in every session. In the last two sessions, however, the mother consistently related a Question response to certain falling utterances of the child, but the Information Comment response was initially related to the falling division, then to the rising and level divisions and, in the third session, to falling and rising utterances equally. In all cases, the actual proportions of falling, rising or level utterances to which these responses are made are in themselves fairly small.

For both mothers examples of overt attribution are few. The mother of Jill was occasionally observed to attribute Information Comments, Expressive Reactions and Play utterances. The mother of Jack was occasionally seen to attribute Information Comments and Positive Directives and, on one occasion, an Information Question. The majority of Jill's mother's attributions were to falling utterances. Jack's mother's attributions were more spread across divisions with the level division, receiving most in the first session, and the falling in the third and fourth sessions.

In the case of the Information Comment, the most frequently attributed function, both mothers' attribution in respect of intonation division, although different from one another, is absolutely in accordance with the frequencies with which the children are seen to use these intonation divisions in respect of this function.

The two children show many similarities in their intonation use. Except in Jack, 20 months, the children use the falling division most frequently. Both use the Simple fall and Simple rise intonation groups most frequently throughout the sessions, with Jack, 28 months, differing only slightly. In this respect the intonation group use of the children in all sessions is identical to that of their mothers'.

As the children come to exhibit a greater number of Function Clear Utterances, it is clear that, like their mothers, more than one intonation division is used with frequently used functions, and a variety of intonation groups within these functions, which show slight differences in type from session to session.

Both children showed a general correspondence of intonation use with that of their mothers with certain specific similarities and differences.

Throughout the sessions the functions for which Function Clear Utterances could be recognised were similar for both children. Smallness of numbers and variation by each child in intonation use from session to session makes comparison of specific uses of intonation by each child difficult. Jill, 24 months, and Jack 25 months, however, show a similar use of both intonation division and intonation groups for the function of Information Comment and Information Question. Jill 24 months, and Jack 28 months, show a strikingly similar use of intonation division in respect of the frequently used Affirmative function, for which both of them use only the falling and level divisions.

CHAPTER 5

Discussion of the Findings Arising from the Examination of the Intonation Form Use and Related Utterance Functions for Jack and Jill and their Mothers.

The complexity of the mother's intonation use was the overriding result that came out of the analysis of the intonation use for both mothers. It was clear that neither mother was generally using intonation alone as a means of signalling to the child the communicative function of an utterance, as described within the devised category system of the illocutionary point of the utterance. The analysis of the content and context of the mothers' utterances suggested that in fact no single feature was habitually carrying the communicative intention but that the meaning of an utterance within a communicative exchange was the result of all these features taken together.

The mothers' intonation is both largely unfixed and undifferentiating in respect of utterance function. Both mothers, however, consistently use particular intonation groups most frequently, and in fact use the same groups as each other. In addition, each mother has certain intonation groups that are used most frequently in relation to a few individual utterance functions and importantly there is almost total agreement between the mothers in this respect. In these ways the intonation use of the two mothers is virtually identical, and, as such, both children are receiving a very similar intonation input in regard to the mothers' communicative intentions. It is only the detail of the function category system and the intonation grouping system that reveals where similarity and variation exist in the mothers' intonation, and this I feel particularly justifies not having tried to use an existing less complicated system of intonation categorisation within which such results would have remained hidden, if such a system could have been applied at all to this data.

Where a rising intonation contour has a special interpersonal function in early communicative exchanges between mother and infant as shown by Stern et al (1982), Papousek and Papousek (1981) and Ryan (1978), such significance must be refined in later communication. Similarly, it is no longer the case that 90% of the speech to the child can be classified by one of only 5 intonation shapes as reported by Papousek, Papousek and Bornstein in their work on speech to infants under one year old.

What the examination of maternal intonation has demonstrated is the way in which the intonation is being used as one element in an integrated expressive code to clearly convey the mothers' intentions in speech.

The studies of adult intonation showed that a variety of contextual features can be seen to individually affect the shape of an intonation contour ('contextual' being used in its widest sense here to encompass, for example, emotions, attitudes, lexical content, information structure, shared knowledge, topic continuation and conduciveness of questions). For any utterance within context there has to be a specific grouping of such features, the effects of which must combine, possibly on some kind of hierarchical basis, to result in the particular intonation shape of the utterance. This resultant shape is obviously constrained by the limits, of whatever origin, of the domains of contrast within a pitch contour. Additionally, it may be the case that for utterances in certain contexts the overall shape of the intonation contour is not fixed and inflexible.

It seems that where contextual considerations are few, or do not need to be conveyed, it may be the case that the effect on the intonation of basic interpersonal intentions can be clearly observed. In this way, in intersubjective communication with young infants a rising/falling contour shape distinction can be clearly related to the underlying motivation to communicate as, for example, contained within an active or reflective mode of meaning. As the messages to be conveyed become more complicated so, correspondingly, do the intonation contrasts. In this way, when an utterance function in an intersubjective setting is specified at a particular level/

level of meaning such as the illocutionary point of 'getting the child to perform an action' or 'sharing an experience' the variation in intonation shape associated with the particular utterance function can be seen as reflecting the variation of contextual features associated with any single utterance within that function group. The meaning of the utterance within its context is thus clearly indicated to the conversational partner, and the variation within the mother's intonation supplies the child with clear vocal information on the mother's purposes in communication.

It would not appear that the mothers are using a simplified form of intonation system in order to facilitate the child's development of such a system. Although there is no adult-to-adult comparison data in this study, it is difficult to imagine how these mothers could increase the complexity of their intonation forms in relation to the most frequently used functions when they are already using in each case almost all of the 12 intonation groups made possible by the system and often all 3 intonation divisions. This may, nevertheless, reflect a simplification by the mother of the contextual details conveyed within her utterance.

The criteria upon which a decision was based as to the function of the child's utterance were rigidly fixed and designed to allow the observer to recognise an unambiguous function and thus an unambiguous use of intonation. As a result of this there are few Function Clear utterances until the sessions where the children are about 24 months old. This does not mean that at ages younger than this the child is not using utterances in other contexts the functions of which would be unambiguously recognised by an unfamiliar observer, or that the child is not using utterances at an earlier age the functions of which are perfectly clear to the mother.

Even where there were few Function Clear utterances of the child, the general overall use of the intonation shape was seen to correspond with that of the mother in regard to the most frequently used intonation groups, and, by around 24 months, with regard to the overall proportions of falling to rising and level shapes.

As the number of Function Clear utterances grew it was apparent that the children did not relate utterance function to intonation division or to single or particular intonation groups within these divisions. Correspondingly, the intonation divisions and the more-frequently used intonation groups were used with several utterance functions. Once again the detail of the system of intonation grouping allowed similarities to be observed which would otherwise have been obscured.

As such, the results and observations reported in studies such as that by Dore were not supported. The childrens' utterances simply did not group into one shape being used only or always for labelling or 'informing' utterances, and another shape being used only or always for 'questioning' or 'requesting' utterances. Indeed, such a distinction did not exist in the mothers' intonation use either, which rather strengthens the idea that such a division of intonation use is something which exists primarily in the popular imagination, possibly based on intonation use in 'reading aloud', rather than something which has concrete reality in spontaneous communication.

Similarly the findings of Montgomery could not be upheld. Although the use of a rising contour was often found in the types of contexts specified by Montgomery, it was not restricted to such functions and neither was a falling contour exclusively used for all other functions.

The division reported by Halliday of his son using a falling intonation shape for utterances not requiring a response as opposed to a rising intonation shape for utterances which did require a response, was not found in the intonation use of the children under study. Such a division also underlies Halliday's concept of adult intonation use. It is not particularly clear upon what basis a decision rests that a child does not require a response to an utterance, but in the function of Information Question, which clearly does require a response, both children used both rising and falling intonations. Additionally, in the utterances which were not Function Clear, thus encompassing the earliest sessions in the age range, there were no behavioural or gestural or contextual groupings related to falling as opposed to rising utterances or to level utterances.

Paradoxically perhaps, the results of the children's intonation use also do not support the idea put forward by authors such as Bloom, Lahey and Barrett, that children's intonation is not systematic until at least over 2 years old. It is possible to see how such an interpretation could arise when only the child's intonation productions are studied. The data in this study certainly supports findings that the child does not use a particular intonation shape for a particular utterance function or in a particular context, and if it were supposed that this ought to be the case it is easy to see how an interpretation of random intonation use would be reached. Study of the mother's intonation, however, enables the child's intonation use to be viewed in perspective and the apparent 'randomness' is seen to be in fact a close match to the mother's use.

Even when the Non Function Clear utterances were included in the analysis, giving thus an overall picture of the child's intonation productions, the most frequently used intonation groups were identical in mothers and children. Further, as increasing numbers of Function Clear utterances made more specific comparisons possible between the mothers and children on particular intonation and utterance function relationships, a general correspondence of intonation use was apparent, reflected either in predominance of intonation division or in use of intonation groups. The children, in addition, showed some marked similarities in intonation use, especially clear on one occasion when one mother's use was not in agreement, indicating again that their intonation use, although complex, was certainly not random. It seems that, like the mother, the child's intonation should be viewed as part of a package of elements which combine to convey the communicative function of an utterance.

It can be seen that the results of this research support none of the diverse positions put forward by previous studies on the intonation use of the young child and yet help to explain most of them. By looking at the complete intonation use of both conversational partners within a particular interactive context it is possible to see how misleading it could be to look at just one aspect of such a situation. No previous study has had the background of the mother's intonation/

intonation use against which to consider the child's productions, and this has allowed certain assumptions about adult use of intonation to be treated as valid when it can in fact be seen that they are not the case. If, for example, it was considered that a short rising intonation was questioning in function, and also that any shape other than this were not, it is likely, given what this study shows about the child's overall intonation use, that a study seeking to find this shape used in a particular type of context would indeed do so. What is wrong with such an approach is the assumption of function of shape in the first place.

Studies such as those of Lahey or Weir or Barrett, which have looked only at one or two children in isolation may not have started with specific assumptions about what shape ought to be associated with what function, but have obviously expected to find some kind of one-to-one relation between shape and function, and, not finding this to be the case, then conclude that the child's intonation has to be non-systematic.

The theoretical position put forward by Grieve and Hoogenraad as a means of explaining or accounting for the disagreements in the literature on the young child's intonation use can also be looked at from a new perspective, for their theory too was based on the idea of a one-to-one relationship between contour and function and that a word which is spoken with one intonation shape on one occasion and another on a different occasion must therefore have a different function on each occasion.

By viewing the intonation of the child as part of a package of communicative features, it is also possible to see how, when a context is defined in detail, incorporating, for example, behaviour, emotion and situational pragmatics, certain functions can be observed to be associated with particular intonation forms in very young children. The Papousek's observations of their daughter using a horizontal, vibrating contour with a 'nagging request' function at around 7 months is an example of this, as are, probably, individual observations by Dore of particular intonation shapes being used in particular contexts by the children he was studying. The mother's intonation/

intonation has indicated that it is neither necessary nor appropriate to attempt to generalise from one observed use of intonation form in context to overall divisions of utterance functions marked by a simple intonation distinction. Nor should such functional group markings by intonation be searched for as a means of 'verifying' an apparent use of intonation form in context.

What the mother's intonation has demonstrated is, that for intonation to have meaning it does not have to be 'contrastive' in itself, reflecting a simple rising and falling division use. Contrasts in meanings of utterances arise from a combination of many communicative features, of which intonation is just one.

Thus it can be seen that because the mothers' intonation use is quite different from any assumed simplistic use, this fact in itself both allows the child's use to be understood within a communicative context never before specified and provides an explanation of the diverse interpretations hitherto offered in respect of the child's intonation use.

The correspondence or matching of intonation use in various respects between the mother or child could have come about in more than one way; the child could be following the mother; the mother could be following the child; both mother and child could be following an innate communicative organisation of intonation individually; or some combination of the preceding options could be the case.

Analysis of the direction and extent of possible influence between mother and child was made difficult by several factors. The mothers used such a variety of intonation groups with all of the major functions that <u>any</u> intonation group used by the child was likely to correspond with one used by the mother. Additionally, as the mothers tended to alter their use of intonation group in respect of a particular function from session to session the recognition of potential influence was complicated. Further, the frequency with which certain functions were used was different for mother and child.

In addition, the fact that both mothers showed virtually identical systematicity in use when any could be observed meant that there were few clear differences in use between the mothers for which a reflected use in the child's intonation might be found.

The very concept of 'influence' had, in fact, to be very carefully considered in the light of the ways in which, it had been revealed, intonation was being used by the mother and child. Given that intonation was acting as part of a package of expressive information, specific areas of influence in use could not sensibly be looked for without considering the other contextual features associated with the utterance, some of which, such as shared knowledge, might be largely inaccessible to an observer. Such an analysis would involve speculation on the child's developing need and ability to both recognise and convey the type of contextual features which might be incorporated in the mother's utterances, and also on the actual contextual features expressed within any particular utterance of the mother of a specific function type.

Although the very nature of the data under study made direction and extent of influence difficult to measure, various aspects of use could nevertheless be compared to this end. Looking at overall use of intonation divisions over time for each pair it can been seen that Jack's mother consistently uses the falling division most frequently, and that, after using the rising division most frequently at 20 months in the first session, Jack then goes to show the same use as the mother in the subsequent sessions. As such it might appear that the child has fallen into line with the mother's use.

For the other child Jill, however, such a straightforward picture is not the case. The child in fact uses the falling division predominately in all sessions, although in the first session the rising division is used with almost equal frequency. The mother, however, uses the rising division most in the first session, and then uses both falling and rising divisions about equally, and finally, in the last session, uses the falling division predominately. As such it would appear, if anything, as if the mother were following the child's use.

Such a level of analysis is subject to the influence of various types of activity singular to the individual sessions under analysis. Thus, for example, in Jack, 20 months, the mother spends a lot of time asking the child about the colours of pencils which they are playing with. The child typically replies using a rising intonation shape and in some sequences several such replies would be contained before the correct answer was arrived at. In Jill, 16 months and Jill, 19 months, the mother has a large number of rising utterances contained within the Play function as elements of listing games which did not happen to feature in Jill, 24 months.

The analysis of the intonation groups used by the mothers and children shows a very similar use of particular intonation groups over all sessions. Both children use the same intonation groups most frequently and so do both mothers, until the last session - Jack, 28 months. In this session the mother for the first time uses a different intonation group, the Undulating fall, most frequently and this is reflected by the child using this intonation group as his second most frequent intonation shape. Close examination of the use of the intonation groups over the sessions showed that where the mother had always made frequent use of the Undulating fall, for the child the progression of frequency of use was gradual. Inspection of the use of this shape showed that it was the most frequently used shape by the mother for Information Comments. The Information Comment was by the third session the most used function of the child and by the fourth session the Undulating fall can be seen to be established as the most frequently used shape by the child for Information Comments. The progressive use of the Undulating fall is possibly the clearest specific example of the child's use of intonation apparently following that of the mother, presumably reflecting the development of an underlying context common to both. Unfortunately, however, even in this case it is not possible to say with certainty that the mother is directly influencing the child's use rather than the child simply developing his own organisation of use which is resulting in the same use as that of the mother. In addition, the example is for one child only, and even at 28 months the child has only begun to use a comparable breadth of function and related intonation groups to the mother. Study of mothers and children from this point onwards would help to complete the picture.

The children's use of intonation group and function was such that no clear examples emerged of the child's use reflecting an individual difference in intonation group use by either mother. Generally the childrens' progressive use of intonation can be seen to be not incompatible with the mothers', where comparison is possible, but with certain notable exceptions. Both children maintain a clear tendency to use the Simple fall with their Function Clear utterances which is not seen in their mothers' use even with respect to the particular functions used by the children. Similarly, both children show a marked disuse of the Undulating rise which is used by both their mothers with almost equal frequency and more often than certain other intonation groups which both children produce. Further, there is the specific use of intonation shape to function, which is different between mother and child and yet identical to both children, as shown in the Affirmative function in Jill, 24 months, and Jack, 28 months. Taken together these points indicate that the child is not always following the mother in his intonation productions.

The extent to which this is a reflection of differing contextual features contained within the children's and mother's utterance functions, as opposed to a reflection of an alternative intonational realisation by the children of contextual features, is not clear. The children have to be organising their own uses of intonation to convey the functions and contextual points which are of importance to them in their own communication. The marked similarity between the two children in this respect suggests that the child's development of intonation use is at least partly the result of an innately organised communicative system. In addition, neither child uses the functions which are most used by the mother, nor do the children produce more frequently the functions for which the mother predominately uses a non complex intonation pattern such as the Simple fall or Simple rise. Both children were seen to use a similar selection of functions comprising largely of the Information Comment, Information Question, Model Repeat, Affirmative, Expressive Reaction and Play.

It is also clear that over the sessions the mother is not altering her intonation use to correspond with that of the child.

The analysis of the intonation productions cannot provide clear evidence of specific instances of the influence of the mother upon the child, largely because of the very character of the data under study and also because of the lack of systematic difference in the intonation use of the mothers.

That both pairs are so generally matched in their intonation productions is in keeping with the concept of the mother exerting an overall influence upon the child's communicative development suggested by the studies of younger infants which showed a general production of target language prosodic features and even intonation patterns discernible as young as at 8 months. The fact, however, that a matching can be seen from the earliest session in this study, which remained unchanged until the last, obscures its beginnings.

The work on mothers' intonation use with young infants suggests a different type of use to that found in this study of the interpersonal functions of mother-child communication. Study of the intonation use of mothers and infants under 15 months would provide information on the intonational precursors to the patterns of intonation use revealed in this study, which might further explain from where or from whom certain patterns emerge. The category systems devised for this study would , I feel, be appropriate also for similar research with mothers with both younger and older infants.

The analysis of the mother's attribution of meaning and response to the child's intonation was included as an alternative means of gauging the mother's potential influence on the child's intonation productions. For Jack, although the mother showed a certain uniformity in the nature of her responses overall, there simply was no relation to be found between function of response and intonation shape at any level. Nor could any lasting trends be found in her attribution of meaning to Non Function Clear utterances, other than that she overtly attributed mostly Information Comments and Positive Directives./

Directives. For Jill the mother's attribution was of Information Comments, Expressive Reactions and Play Utterances, and in each session the majority of overt attributions were to falling utterances.

The fact that the categorisation of overt attribution rested by necessity almost entirely upon the content of the mother's utterances greatly limited the scope of such an analysis, constraining at the same time the very nature of the functions which could be overtly attributed. Nevertheless, the mothers are consistently different in the nature of the functions which they do attribute, and also show differences in the way they relate their attributions to intonation division.

This latter observation in the case of the Information Comment is in accordance with the frequencies with which the children are seen to use these intonation divisions in respect of this function. As such it would seem that generally, in both cases, the mothers are not committing themselves to any specific attribution of meaning to most utterances of their children, where the meaning is not absolutely clear in the course of their conversation and interaction, but, that when they do attribute a meaning overtly this is not based on any imposed idea of intonation use by the mother but, in fact, corresponds with demonstrable intonation use by the child. The mother's recognition of functional use of intonation by the child may also underlie the apparent intonation shape related tendencies of the No Utterance response, which varied across sessions.

The mother of Jill showed certain tendencies within the functions of her responses, which, however, altered from session to session. With total numbers being fairly small a difference of only one or two utterances could make a possibly misrepresentative difference in relative frequencies, and also, although a particular response might be found considerably more often with one particular intonation division, it was never the case that more than 31% of the utterances in the intonation division were in fact responded to in this way, usually considerably less. Nevertheless, this mother did tend to organise her response of Information Comments and both types of Questions/

Questions differentially in respect of the child's intonation. The fact that the mother alters the direction of this relationship completely between the first and second sessions and then appears to reach some middle position in the third is difficult to explain. Perhaps in the first session where the child is only 15 months the mother is 'matching' her response to what she may think is the function of the child's utterance in the sense of matching the child's interest or intentions towards the object or making more clear some appropriate word content, thus resulting in many of the child's rising utterances receiving a Question response and many of the child's falling utterances receiving an Information Comment. By the second session the mother may have decided, rather than matching the child's communicative intention, to provide information to what she may think of as a questioning utterance and to question further what she may think of as an informative utterance, thus reversing the trend of her response. By the third session the child's own unambiguous use of intonation may have caused such responses to be less differentiated. The child, when she starts to use Information Questions and Information Comments uses the falling and rising divisions equally. As such, she does not appear to have been influenced in any way by the mother's selective responding.

It is interesting that the mother, even to this small extent, would appear to selectively provide information to certain intonation shapes and seek further information in response to different intonation shapes, because this distinction is very close to what Halliday reports as organising his son's intonation productions at around 19 months. In this case however, the distinction is clearly imposed upon the intonation, and even then only on some occasions.

Overall, the results of the mother's attribution and response analyses indicate that the mothers do not differentially respond to the child's intonation in terms of intonation division or intonation group except in accordance with the child's functionally unambiguous production trends, and as such are not seen to be imposing any kind of simplistic rising versus falling intonation organisation upon the child's utterances. Given what the study has revealed about the mothers' use of intonation this can be seen to be in accordance with the/

the mothers' own use of intonation which also cannot be divided simplistically into falling shapes being used for one type of function and rising another.

It is difficult to pinpoint any evidence of direct influence of the mother's response to the child's intonation on the child's intonation use, although the child's use in general reflects the mother's response behaviour in so far as neither tie particular intonation shapes to particular intonation functions. The child does not use, intonation in a simple fashion and the mother does not respond to the child's intonation as if it were being used as a simple differentiator. The mother's response behaviour in its turn reflects the mother's actual use of intonation and, as such, could be seen as both reinforcing and encouraging such a manner of use in the child.

5.1 Conclusion

This thesis addressed three major questions concerning the intonation of mothers and their children in early speech. The first two of these were:

1. What is the nature of the mother's use of intonation in relation to utterance functions in communication with her language developing child?

2. In what ways can the child's use of intonation be related to the mother's intonation use in respect of utterance functions in communication.

The mother's intonation was not a constant and differentiated indicator of utterance function, though a certain specificity of form use was displayed, which was common to both mothers. The intonation of the mothers is seen to be one component in the complete package of information which conveys the meaning of an utterance in context.

The intonation of the children closely matched that of the mothers in use of form, and it also varied in similar ways to the mothers' in relation to utterance function. The children clearly did not use intonation 'contrastively' in the sense of one intonation shape indicating only or always one utterance function, and another shape a different function. Further, each child's overall matching of his or her mother's use, combined with particular similarities between the intonations of the two children, indicated that their use was neither 'random' nor child specific. From the earliest utterances for which the function was clearly recognisable, the children used intonation in a manner which corresponded to that of the mother.

There is a suggestion in the later sessions with the older child that it is becoming possible to observe an influence of the mother's intonation on the child's use of a particular form for a particular function. Certain differences, however, common to both children, between their intonation and that of their mothers, indicate that use of intonation is partly organised within a child's own developing communicative system. The child's use of intonation can thus be considered to reflect both an innately organised communicative system, and the influence of the intonation environment provided by the mother's speech.

The joint study of the mother's use of intonation with that of her child in a natural communicative context has been shown to be of vital importance in understanding the way in which intonation is used by children in early speech. The two mother and child pairs under study present a cohesive picture which does much to explain the diverse results of previous studies on how intonation is used by young children. The children's intonation was able to be understood better within a new perspective on the nature of the intonation use which they are developing.

The third question addressed by the thesis was:

3. What is the mother's response to the child's intonation productions, and in what way does this affect the child's subsequent development of intonation use?

The mothers did not respond to the child's intonation as if it were being used as a simple differentiator of utterance function. The mother's responses to their children's intonation did, however, correspond to the ways in which the mothers themselves use intonation, and, in this way, could be seen to be both encouraging and reinforcing such a manner of use in the child.

Appendix I

Behaviour Description Categories

Gaze Direction

There were 5 main categories of gaze direction.

I. **Looking at other:**

This was when one or other was looking at the eyes or face of the other. This was denoted in the transcript as M→C or C→M

II. **Mutual Gaze**

Where mother and child were in mutual eye contact denoted as M↔C

III **Looking at Object**

Where an object was involved in the interaction it could either be attended to be both participants or by just one. Similarily each participant object. When an object was first attended to in the interaction it was described using its name thus C → train. If the mother also attended to the train and it was the object of joint attention this would be denoted as M→O or C→O. Where mother and infant were looking at different objects this would be denoted as M→own O, C→own O. Where a switch of attention to the object of the other participant was involved this was denoted M→C's O, C→M's O.

IV **Looking at action**

Where participants were looking at the actions of each other or engaged in joint action, including action upon an object or objects. This was denoted M→A, C→A. Where an object was involved A implies also looking at the object(s) acted upon and as such superseded the 'looking at object' categories. Where mother or child was engaged in acting upon objects individually this would be denoted M→own A, C→own A, when looking at the actions of the other this was denoted M→C'sA or C→ M'sA.

V **Looking elsewhere**

Where mother or child looks away from an object or activity, but not towards another particular object.
Categories used were

to side, around floor

up, down

up to ceiling

Movements and Gestures

The following descriptions were used:-

reaches towards, picks up, holds, clasps, points point touch (touching object with tip of pointing finger), touches, lifts, presses, pulls, puts hand on (top of), transferring (object into a different hand), putting towards (an object towards another object or place), placing (an object at a position), guides other fingers towards an object (physically moving other fingers), puts down, releases, putting on, holding object out towards other, pushes, setting object into position, lifts finger off, retracts hand from (from object), bringing other hand also (to an object), part extension of arm towards, thrusting object towards/into, rolling object (on floor), rolling object in hands, holds object up to other, shakes object, drops object, have hand at an object, puts object to mouth, waving arms, shrugging shoulders, turns head, turns body, leans forward, retracts (leans back).

Appendix II

Classification of Grammatical Form and Propositional Content

'Statement' form

a) Object related (identity, function, location, attribute) eg, 'that's a truck' 'this man has a blue hat'.

b) Interest and evaluation eg, 'that's nice' you're happy to do that'

c) Action related eg, 'I'm not going to push it', 'you're moving it', 'lets read this book'

d) Personal attribute eg, 'you're not very tidy'

e) Possession eg, 'you've got two now'

f) Explanation of procedures eg, 'what you do is.....' 'if you hold it like this then .....'

g) Intention of other eg, 'you didn't mean to do that'

h) Experience of other eg, 'you're going to lose it'

i) Abstract event eg, 'that was a bit of an accident'

j) Evaluation of Other's Action eg, 'that was good', 'that's a clever girl'

k) Fantasy play (actions of objects) eg, 'he's saying 'hello' to you'

l) Agent related eg, 'Mummy did it'

m) Knowledge related eg, 'I don't know what it is' 'you know how to do this'

n) Judgement related eg, 'I think its a doggie'

'Question' Form

a) Object related (identity, function, location, attribute) eg, 'What's that?', 'Is that a big truck?'

b) Interest and attitude eg, 'Is that interesting?', 'Do you like that?'

c) Ability to perform action on object eg, 'Can you do that?'

d) Action related eg, 'What are you going to do with that?', 'Are you going to pick it up?', 'Why don't you push it along?', 'What are you drawing?'

e) Personal attribute eg, 'Are you a tidy boy?'

f) Intentions about regulating other's behaviour eg, 'Am I supposed to pick this up for you?'

h) Abstract event eg, 'What happened?'

i) Transfer of objects eg, 'Can I have it?'

j) Choice of object/action/subject eg, 'What shall we draw?', 'What colour do you want?', 'Shall we read this book?'

k) Assistance eg, 'Shall mummy help?'

Tag Question

No direct propositional content. Tag questions following statements eg, 'You like that, <u>don't you</u>?', 'That's nice, <u>isn't it</u>?' were noted separately from the statements.

'Command' form

a) Actions related eg, 'put it in the truck', 'pick it up', take that out of your mouth,' 'don't do that'

b) Transfer of objects eg, 'give it to me'

c) Attention to other or other's action eg, 'watch me', 'look at what I'm doing'

d) Verbal response eg, 'you say it'

e) control of self eg, 'don't force it'

f) Assistance related eg, 'help Mummy'

Exclamations

a) Non specific eg, 'oh!, 'hey!', 'right!'

b) Attention related eg, 'look!'

c) Negative eg, 'no!'

d) Evaluative eg, 'well done!' 'Clever girl!'

e) Control of self eg, 'gently!' 'careful!'

<u>No grammatical form</u>

a) Nonsense and playwords eg, chuchuchuchu, brrrm brrrm

Appendix III

Tables Relating the Mother's Intonation Form Use with Utterance Functions

Table 1

Jill 16m - Mother's Utterances

Function	Intonation Division			
	Falling	Rising	Level	Total
Positive Directive	12	9	1	22
Information Comment	15	22		37
Didactic Question	4	7	1	12
Information Question	3	5		8
Supportive	3	10	2	15
Corrective		1		1
Corrective Information Comment	5	3		8
Affirmative		3	4	7
Expressive Reaction	1	2	2	5
Challenge Judgement	1	2		3
Maintain Interest	2			2
Play	3	14	2	19
Explain C's Expressiveness	1			1
Unsuccess	2			2
Repeat Affirm	1	1		2
Completeness Marker		3		3
Readiness Marker	3	1		4
Success	2	4		6
Encourage	2		1	3
Pinpoint			1	1
Stumble Marker	1			1
Imposition Softener	1			1
Compounds	17	20		37
	79	107	14	200

Table 2
Jill 16m - Mother's Utterances

Function	Falling Intonation Group						
	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	8	1			2	1	12
Information Comment	3	3	2			7	15
Didactic Question	3	1					4
Information Question		2				1	3
Supportive	1		1		1		3
Corrective Information Comment	1	1	3			5	
Expressive Reaction				1			1
Challenge Judgement			1				1
Maintain Interest	1				1		2
Play	2		1				3
Explain C's Expressiveness		1					1
Repeat Affirm	1						1
Readiness Marker	1	1	1				3
Success	2						2
Unsuccess	2						2
Stumble Marker	1						1
Imposition Softener			1				1
Encouragement	2						2
Compounds			(3)			(14)	17.
	28	10	10	1	4	9	79

Table 2a

Jill, 16m - Mother's Utterances

Pitch Range

Falling Intonation Group

Function	Simple			Jump			Large Jump			Marked Jump			Slope			Undulating		
	M	L	K	M	L	K	M	L	K	M	L	K	M	L	K	M	L	K
Positive Directive	2	5	1	1	-	-	-	-	-	-	-	-	-	2	-	-	-	1
Information Comment	1	2	-	-	3	-	-	2	-							2	4	1
Didactic Question	1	2	-	-	-	1												
Information Question				-	2	-										-	1	-
Supportive	-	1	-				-	1	-				1	-	-			
Corrective Information Comment	1	-	-	1	-	-	-	3	-									
Expressive Reaction										1	-	-						
Challenge Judgement							1	-	-									
Maintain Interest	-	1	-										1	-	-			
Play	-	2	-				-	1	-									
Explain C's Expressiveness	1	-	-															
Repeat Affirm	-	1	-															
Readiness Marker	-	1	-	1	-	-	-	1	-									
Success	2	-	-															
Unsuccess	-	2	-															
Stumble Marker	-	1	-															
Imposition Softener							-	1	-									
Encouragement	1	1	-															

Table 2b

Jill, 16m - Mother's Utterances

Pitch Height

Falling Intonation Group

Function	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating
	M M L M H H	M M L M H H	M M L M H H	M M L M H H	M M L M H H	M M L M H H
Positive Directive	- 4 4 -	- - 1 -			- 2 - -	- - - 1
Information Comment	- 1 2 -	- - 3 -	- - 2 -			- 1 5 1
Didactic Question	- - 3 -	- - - 1				
Information Question		- - 2 -				- - 1 -
Supportive	- 1 - -		- - 1 -		- - 1 -	
Corrective Information Comment	- 1 - -	- 1 - -	- 2 1			
Expressive Reaction				- - - 1		
Challenge Judgement			- - 1 -			
Maintain Interest	- - 1 -				- 1 - -	
Play	- - 2 -		- - - 1			
Explain C's Expressiveness	- 1 - -					
Repeat Affirm	- - 1 -					
Readiness Marker	- - 1 -	- - 1 -	- - 1 -			
Success	- - 2 -					
Unsuccess	- - 2 -					
Stumble Marker	- - 1 -					
Imposition Softener			- - 1 -			
Encouragement	- 1 1 -					

Table 3

Jill Hom- Mother's Utterances

Function	Rising Intonation Group					
	Simple	Jump	Large Jump	Slope	Undulating	Total
Positive Directive	2	1	2		4	9
Information Comment	4	2	5		11	22
Didactic Question	1	1	2	1	2	7
Information Question	1		1	1	2	5
Supportive	7	1	2			10
Corrective	1					1
Corrective Information Comment	1	1	1			3
Affirmative	2				1	3
Expressive Reaction	2					2
Challenge Judgement				2		2
Play	14					14
Repeat Affirm			1			1
Completeness Marker	3					3
Readiness Marker			1			1
Success	3			1		4
Compounds			(2)		(18)	20
	41	6	15	5	20	107

Table 3a

Jill, 16m - Mother's Utterances

Pitch Range

Rising Intonation Group

Function	Simple			Jump			Large Jump			Slope			Undulating		
	M	L	K	M	L	K	M	L	K	M	L	K	M	L	K
Positive Directive	1	1	-	-	1	-	2	-	-				-	4	-
Information Comment	1	3	-	-	2	-	1	1	3				2	7	2
Didactic Question	1	-	-	-	1	-	-	1	1	1	-	-	-	1	-
Information Question	-	1	-				-	1	-	1	-	-	-	-	2
Supportive	1	5	1	-	1	-	-	1	1						
Corrective	-	1	-												
Corrective Information Comment	-	1	-	-	1	-	-	1	-						
Affirmative	-	2	-										-	1	-
Expressive Reaction	2	-	-												
Challenge Judgement										1	1	-			
Play	9	4	1												
Repeat Affirm				-	1	-									
Completeness Marker	-	3	-												
Readiness Marker				-	-	1									
Success	-	3	-							1	-	-			

Table 3b

Jill 16m - Mother's Utterances — Pitch Height

Rising - Intonation Group

Function	Simple				Jump				Large Jump				Slope				Undulating			
	L	L	M	M H	L	L	M	M H	L	L	M	M H	L	L	M	M H	L	L	M	M H
Positive Directive	-	-	2	-	-	1	-	-	-	-	2	-					-	2	2	-
Information Comment	-	1	3	-	-	2	-	-	1	4	-	-					-	7	4	-
Didactic Question	-	-	-	1	-	1	-	-	-	-	2	-	-	-	1	-	-	1	1	-
Information Question	-	-	1	-					-	1	-	-	-	-	1	-	1	1	-	-
Supportive	-	4	3	-	-	1	-	-	-	-	2	-								
Corrective	-	1	-	-																
Corrective Information Comment	-	1	-	-	-	1	-	-	-	1	-	-								
Affirmative	-	-	2	-													-	1	-	-
Expressive Reaction	-	-	-	2																
Challenge Judgement													1	-	1	-				
Play	-	4	8	2																
Repeat Affirm					-	1	-	-												
Completeness Marker	-	-	3	-																
Readiness Marker										-	1	-								
Success	-	-	3	-										-	1	-	-			

Table 4

Jill 16m - Mother's Utterances

	Level Intonation Division					
	Pitch Height					
Function	L	ML	M	MH	H	Total
Positive Directive				1		1
Information Comment						
Didactic Question				1		1
Information Question						
Supportive			1	1		1
Affirmative			2	2		4
Expressive Reaction				2		2
Play				2		2
Encourage				1		1
Pinpoint		1				1
		1	3	10		14

Table 16
Jill, 19m Mother's Utterances

Function	Intonation Division			
	Falling	Rising	Level	Total
Positive Directive	13	10	4	27
Information Comment	19	21	1	41
Didactic Question	9	4		13
Information Question	9	10		19
Supportive	1	1		2
Corrective			1	1
Corrective Information Comment	3			3
Affirmative	1	2		
Expressive Reaction	3	3	7	13
Agreeing		1		1
Acknowledge	2	6		8
Play	13	12	3	28
Clarification Seek		9		9
Compounds	9	5		14
Unsuccess	1			1
Stumble	1	2	3	6
Readiness Marker	2	1		3
Mirroring C	3		1	4
Thanks C	1			1
Success		2	1	3
	90	89	21	200

Table 17
Jill, 19m - Mother's Utterances

Function	Falling Intonation Group					Total
	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	
Positive Directive	5	5			1	2	13
Information Comment	7	7	1		1	2	19
Didactic Question	6				1	2	9
Information Question	1	6			1	1	9
Supportive	1						1
Corrective Information Comment		1				2	3
Affirmative	1						1
Expressive Reaction	2		1				3
Acknowledge	2						2
Play	7	1			1	4	13
Unsuccess					1		1
Stumble	1						1
Readiness	2						2
Mirroring Child	1		2				3
Thanks C	1						1
Compounds			(1)		(8)		9
	37	20	4		6	13	90

Table 17a

Jill 19m - Mother's Utterances Pitch Range

Falling Intonation Group

Function	Simple			Jump			Large Jump			Slope			Undulating		
	M	L	M K	M	L	M K	M	L	M K	M	L	M K	M	L	M K
Positive Directive	4	1	-	3	1	1				1	-	-	1	1	-
Information Comment	3	4	-	2	6	-	-	1	-	1	-	-	-	2	-
Didactic Question	2	4	-							1	-	-	-	2	-
Information Question	-	1	-	5	1	-				-	1	-	1	-	-
Supportive	1	-	-												
Corrective Information Comment				1	-	-								2	-
Affirmative	1	-	-												
Expressive Reaction	-	2	-				1	-	-						
Acknowledge	1	1	-												
Play	2	5	-	1	-	-				1	-	-	-	4	-
Unsuccess										1	-	-			
Stumble Marker	1	-	-												
Readiness Marker	1	1	-												
Mirroring Child	-	1	-				-	2	-						
Thanks Child	-	1	-												

Table 17b

Jill 19m - Mother's Utterances — Pitch Height

Falling Intonation Group

Function	Simple				Jump				Large Jump				Slope				Undulating			
	L	M	H	H	L	M	H	H	L	M	H	H	L	M	H	H	L	M	H	H
Positive Directive	-	3	2	-	-	2	3	-					-	1	-	-	-	-	2	-
Information Comment	-	-	7	-	-	-	8	-	-	-	1	-	-	-	-	1	-	2	-	-
Didactic Question	-	1	5	-									-	-	-	1	-	-	2	-
Information Question	-	-	1	-	-	3	3	-					-	-	-	1	-	1	-	-
Supportive	-	1	-	-																
Corrective Information Comment					-	1	-	-									-	-	2	-
Affirmative	1	-	-	-																
Expressive Reaction	-	-	2	-					-	-	1	-								
Acknowledge	-	1	1	-																
Play	-	1	6	-	-	-	1	-					-	-	1	-	-	-	4	-
Unsuccess													-	-	1	-				
Stumble Marker	1	-	-	-																
Readiness Marker	1	-	1	-																
Mirroring Child	-	-	1	-					-	-	2	-								
Thanks Child	-	-	1	-																

Table 13

Jill Ann- Mother's Utterances

Function	Rising Intonation Group						
	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	3	2	3			2	10
Information Comment	3	4	5			9	21
Didactic Question	1	1	2				4
Information Question	4	2			3	1	10
Supportive	1						1
Affirmative	1	1					2
Expressive Reaction	3						3
Agreeing	1						1
Acknowledge	6						6
Play	9				1	2	12
Clarification Seek	9						9
Success Marker	2						2
Stumble	2						2
Readiness Marker	1						1
Compounds			(1)		(4)		5
	46	10	10		4	14	89

Table 18a

Jill 19m - Mother's Utterances Pitch Range

Rising Intonation Group

Function	Simple			Jump			Large Jump			Slope			Undulating		
	M	L	M K	M	L	M K	M	L	M K	M	L	M K	M	L	M K
Positive Directive	-	3	-	-	2	-	2	1	-				1	-	1
Information Comment	1	1	1	1	3	-	2	3	-				-	8	1
Didactic Question	1	-	-	1	-	-	-	2	-						
Information Question	1	2	1	1	1	-				2	1	-	-	1	-
Supportive	-	1	-												
Affirmative	-	1	-	-	1	-									
Expressive Reaction	2	1	-												
Agreeing	-	1	-												
Acknowledge	-	6	-												
Play	1	8	-							-	1	-	1	1	-
Clarification Seek	-	9	-												
Success	1	1	-												
Stumble Marker	-	2	-												
Readiness Marker	1	-	-												

Table 18b

Jill 19m - Mother's Utterances — Pitch Height

Rising Intonation Group

Function	Simple				Jump				Large Jump				Slope				Undulating			
	M			M	M			M	M			M	M			M	M			M
	L	M	H	H	L	M	H	H	L	M	H	H	L	M	H	H	L	M	H	H
Positive Directive	-	3	-	-	-	1	1	-	-	3	-	-					-	1	1	-
Information Comment	-	2	1	-	-	4	-	-	-	-	5	-					-	8	1	-
Didactic Question	-	-	1	-	-	1	-	-	-	2	-	-								
Information Question	-	3	1	-	-	1	1	-					-	1	2	-	-	1	-	-
Supportive	-	1	-	-																
Affirmative	-	1	-	-	-	1	-	-												
Expressive Reaction	-	1	2	-																
Agreeing	-	1	-	-																
Acknowledge	-	6	-	-																
Play	-	3	6	-									1	-	-	-	-	1	-	1
Clarification Seek	-	7	2	-																
Success	-	2	-	-																
Stumble Marker	-	1	1	-																
Readiness Marker	-	1	-	-																

Table 19
Jill, 19m - Mother's Utterances

Function	Level Intonation Division L	ML	M	MH	H	Total
Positive Directive		2	2			4
Information Comment				1		1
Corrective		1				1
Expressive Reaction			3	4		7
Play			3			3
Success			1			1
Mirroring Child			1			1
Stumble Marker		1		2		3

Table 30
Jill 24m - Mother's Utterances

Function	Intonation Division			
	Falling	Rising	Level	Total
Positive Directive	18	7	3	28
Information Comment	19	13	1	33
Didactic Question	11	7		18
Information Question	15	5		20
Supportive	3	3		6
Corrective		1		1
Corrective Comment	2			2
Corrective Information Comment		1		1
Affirmative	2			2
Expressive Reaction	3	2	3	8
Didactic Model			2	2
Corrective Prompt		1		1
Challenge Judgement		3	1	4
Affirm Repeat		1	1	2
Check Message	2	2		4
Prohibitive Directive			1	1
Agreeing			1	1
Attention Focus		1	1	2
Dialogue Device		1		1
Acknowledge		1		1
Play	5	5	3	13
Encourage	2		4	6
Completeness Marker	1			1
Readiness Marker		2		2
Pinpoint Attention		1		1
Stumble Marker		1	3	4
Success	2	1		3
Clarification Seek		1		1
Compounds	24	7		31
	110	66	24	200

Table 31

Jill 24m - Mother's Utterances

Function	Falling Intonation Group					
	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	8	4	1		3	2	18
Information Comment	4	3	3			9	19
Didactic Question	4	2	3			2	11
Information Question	5	5	2			3	15
Supportive	2	1					3
Corrective Comment	1	1					2
Corrective Information Comment	1						1
Affirmative	2						2
Expressive Reaction	3						3
Check Message	1	1					2
Play	4	1					5
Encourage		1	1				2
Completeness Marker	1						1
Success	1	1					2
Compounds		(2)	(6)			(16)	24
	36	21	10		3	16	110

Table 31a

Jill 24m - Mother's Utterances

Function	Pitch Range: Falling Intonation Group														
	Simple			Jump			Large Jump			Slope			Undulating		
	M			M			M			M			M		
	M	L	K	M	L	K	M	L	K	M	L	K	M	L	K
Positive Directive	4	4	-	1	3	-	-	1	-	3	-	-	-	2	-
Information Comment	3	1	-	2	1	-	-	3	-				1	7	1
Didactic Question	1	3	-	-	2	-	-	3	-				-	2	-
Information Question	3	2	-	1	4	-	1	1	-				3	-	-
Supportive	1	1	-	-	1	-									
Corrective Comment	1	-	-	-	1	-									
Corrective Information Comment				-	1	-									
Affirmative	1	1	-												
Expressive Reaction	1	2	-												
Check Message	1	-	-	1	-	-									
Play	-	4	-	1	-	-									
Encourage				1	-	-	1	-	-						
Completeness Marker	1	-	-												
Success	1	-	-	1	-	-									

Table 31b

Jill 24m - Mother's Utterances — Pitch Height

Function	Falling Intonation Group									
	Simple		Jump		Large Jump		Slope		Undulating	
	M L	M H	M L	M H	M L	M H	M L	M H	M L	M H
Positive Directive	1	4	- 1	3 -	- -	1 -	- 2	1 -	- -	2 -
Information Comment	- 2	2 -	- 2	1 -	- -	3 -			- 1	7 1
Didactic Question	- 1	3 -	- -	2 -	- -	3 -			- -	2 -
Information Question	- 3	2 -	- 2	3 -	- -	2 -			- 2	1 -
Supportive	- 1	1 -	- -	1 -						
Corrective Comment	- 1	- -	- -	1 -						
Corrective Information Comment			- -	1 -						
Affirmative	1 -	1 -								
Expressive Reaction	- 2	1 -								
Check Message	- 1	- 1	- -	1 -						
Play	- 1	3 -	- -	1 -						
Encourage			- 1	- -	- -	1 -				
Completeness Marker	- 1	- -								
Success	- -	1 -	- 1	- -						

Table 32

Jill, 24m Mother's Utterances

Function	Rising Intonation Group					
	Simple	Jump	Large Jump	Slope	Undulating	Total
Positive Directive	2	1			4	7
Information Comment	1	4	3		5	13
Didactic Question	4		1	1	1	7
Information Question	3				2	5
Supportive	1	1		1		3
Corrective	1					1
Expressive Reaction	2					2
Corrective Prompt				1		1
Challenge Judgement			2		1	3
Check Message	2					2
Attention Focus		1				1
Dialogue Device	1					1
Acknowledge	1					1
Play	3		1		1	5
Compounds	(2)	(1)	(1)		(3)	7
Success	1					1
Affirm Repeat	1					1
Stumble Marker	1					1
Pinpoint Attention		1				1
Readiness Marker	1		1			2
Clarification Seek	1					1
	26	8	8	3	14	66

Table 32a

Jill 24m - Mother's Utterances — Pitch Range

Rising Intonation Group

	Simple			Jump			Large Jump			Slope			Undulating		
	M			M			M			M			M		
	M	L	K	M	L	K	M	L	K	M	L	K	M	L	K
Positive Directive	-	1	1	1	-	-							-	4	-
Information Comment	1	-	-	1	3	-	-	3	-				-	5	-
Didactic Question	-	4	-				-	1	-	1	-	-	-	1	-
Information Question	2	1	-										-	2	-
Supportive	-	1	-	-	1	-				1	-	-			
Corrective	-	1	-												
Expressive Reaction	1	1	-												
Corrective Prompt										1	-	-			
Challenge Judgement							-	2	-				-	1	-
Check Message	-	2	-												
Attention Focus				-	1	-									
Dialogue Device	1	-	-												
Acknowledge	-	1	-												
Play	1	2	-	-	1	-							-	1	-
Success	-	-	1												
Affirm Repeat	-	1	-												
Stumble Marker	1	-	-												
Pinpoint Attention				1	-	-									
Readiness Marker	-	1	-				-	1	-						
Clarification Seek	-	1	-												

Table 32b

Jill 2½ Mother's Utterances Pitch Height

Function	Rising Intonation Group															
	Simple				Jump				Large Jump				Slope				Undulating			
	L	L	M	H	L	L	M	H	L	L	M	H	L	L	M	H	L	L	M	H
Positive Directive	1	1	-	-	-	1	-										-	4	-	-
Information Comment	1	-	-	-	1	3	-	-	2	1	-	-					-	1	4	-
Didactic Question	-	4	-	-					1	-	-	-	-	1	1	1	-	1	-	-
Information Question	-	1	2	-													-	2	-	-
Supportive	-	1	-	-	-	1	-	-					-	1	-	-				
Corrective Comment	-	1	-	-																
Expressive Reaction	-	-	1	1																
Corrective Prompt																	-	1	-	-
Challenge Judgement									1	1	-	-					-	1	-	-
Check Message	-	2	-	-																
Attention Focus					-	1	-	-												
Dialogue Device	-	-1	-																	
Acknowledge	-	1	-	-																
Play	-	3	-	-					-	-	1	-					-	1	-	-
Success	-	1	-	-																
Affirm Repeat	-	1	-	-																
Stumble Marker	-	-	1	-																
Pinpoint Attention					-	1	-	-												
Readiness Marker	-	1	-	-					1	-	-	-								
Clarification Seek	-	1	-	-																

Table 33

Jill, 24m - Mother's Utterances Level

	Intonation Height					
Function	L	ML	M	MH	H	Total
Positive Directive						
Information Comment			3			3
Didactic Question				1		1
Information Question						
Expressive Reaction			2	1		3
Didactic Model			2			2
Challenge Judgement			1			1
Prohibitive Directive		1				1
Agreeing			1			1
Attention Focus			1			1
Play			1	2		3
Affirm Repeat		1				1
Encourage			4			4
Stumble Marker			1	2		3
		2	16	6		24

Table 47
Jack 20m - Mother's Utterances

Function	Intonation Division			
	Falling	Rising	Level	Total
Positive Directive	41	12	12	65
Information Comment	13	5	-	18
Didactic Question	3	3		6
Information Question	1		1	2
Supportive	1	6	1	8
Opposive	9	-		9
Corrective	1	1	1	3
Corrective Information Comment	2	1		3
Affirmative	1		1	2
Expressive Reaction	6	1	5	12
Didactic Model	1			1
Challenge Judgement		1		1
Check Message		1		1
Prohibitive Directive	6	1	2	9
Maintain Interest		1		1
Attention Focus	1			1
Play	3			3
Clarification Seek		3		3
Imposition Softener		1		1
Affirm Repeat	1	1		2
Mock	2			2
Explaining C's Reaction	1			1
Unsucess	2		1	3
Encourage	1	1		2
Justify C's Experience	1			1
Pinpoint	1			1
Success		1		1
Compounds	26	12	-	38
	124	52	24	200

Table 48
Jack 20m - Mother's Utterances

Function	Falling Intonation Group						
	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	24	8	4		1	4	41
Information Comment	2	5			1	5	13
Didactic Question		1	2				3
Information Question						1	1
Supportive						1	1
Opposive	6	2				1	9
Corrective	1						1
Corrective Information Comment	1		1				2
Affirmative	1						1
Expressive Reaction	6						6
Didactic Model	1						1
Prohibitive Directive	4		1			1	6
Attention Focus	1						1
Dialogue Device							1
Play	2					1	3
Affirm Repeat	1						1
Mock						2	2
Explaining C's Reaction						1	1
Encouraging	1						1
Unsuccess	2						2
Justify C's Experience		1					1
Pinpoint	1						1
Compounds	(2)	(1)	(3)			(20)	26
	54	17	8		2	17	124

Table 48a

Jack 20m - Mother's Utterances — Pitch Range

Function	Falling Intonation Group: Simple M L	Simple M K	Jump M L	Jump M K	Large Jump M L	Large Jump M K	Slope M L	Slope M K	Undulating M L	Undulating M K	
Positive Directive	7	14 3	4	2 2	1	3 -	1	- -	-	4 -	3
Information Comment	-	2 -	2	1 -			1	- -	1	1 1	9
Didactic Question				- 1 -		- 2 -					3
Information Question										- 1 -	1
Supportive									1	- -	1
Opposive	5	1 -	1	1 -						- 1 -	9
Corrective	-	1 -									1
Corrective Information Comment	-	1 -				- 1 -					2
Affirmative	1	- -									2
Expressive Reaction	3	3 -									6
Didactic Model	1	- -									1
Prohibitive Directive	-	4 -				- 1 -				- - 1	6
Attention Focus	-	1 -								- - 1	2
Play	1	1 -									2
Affirmative Repeat	1	- -									1
Mock										- 2 -	2
Encourage	-	1 -									1
Unsuccess	1	1 -									2
Justify Child's Experience				1 - -							1
Pinpoint Attention	-	1 -									1
Explain Child's Reaction										- - 1	1

Table 48b

Jack, 20m - Mother's Utterances — Pitch Height

Falling - Intonation Group

Function	Simple	Jump	Large Jump	Slope	Undulating
	M M L M H H	M M L M H H	M M L M H H	M M L M H H	M M L M H H
Positive Directive	1 10 12 1	1 3 4 -	- - 4 -	- 1 - -	- 2 2 -
Information Comment	- 1 1 -	- 2 1 -		- - 1 -	- 2 1 -
Didactic Question		- - 1 -	- - 2 -		
Information Question					- - 1 -
Supportive					- 1 - -
Opposive	2 4 - -	- 1 1 -			- - 1 -
Corrective	- 1 - -				
Corrective Information Comment	- 1 - -		- - 1 -		
Affirmative	- 1 - -				
Expressive Reaction	1 3 2 -				
Didactic Model	- - 1 -				
Prohibitive Directive	- 2 2 -		- - 1 -		- - 1 -
Attention Focus	- - 1 -				- - 1 -
Play	- 1 1 -				
Affirmative Repeat	- 1 - -				
Mock					- 1 1 -
Encourage	- 1 - -				
Unsuccess	1 1 - -				
Justify Child's Experience		- 1 - -			
Pinpoint Attention	- 1 - -				
Explain Child's Reaction					- - 1 -

Table 49
Jack, 20m - Mother's Utterances

Function	Rising Intonation Group						
	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	1	3	3		1	4	12
Information Comment	1	1			1	2	5
Didactic Question	2	1					3
Supportive	4	1	1				6
Corrective Comment	1						1
Corrective Information Comment		1					1
Expressive Reaction	1						1
Challenge Judgement						1	1
Check Message	1						1
Prohibitive Directive	1						1
Maintain Interest		1					1
Clarification Seek	3						3
Affirm Repeat	1						1
Success	1						1
Encourage	1						1
Imposition Softener						1	1
Compounds		(1)	(4)			(7)	12
	18	8	4		2	8	52

Table 49a

Jack, 20m - Mother's Utterances

Pitch Range

Rising Intonation Group

Function	Simple			Jump			Large Jump			Slope			Undulating		
	M	L	K	M	L	K	M	L	K	M	L	K	M	L	K
Positive Directive	-	1	-	-	2	1	3	-	-	1	-	-	2	1	1
Information Comment	-	1	-	-	1	-				1	-	-	1	1	-
Didactic Question	-	2	-	-	1	-									
Information Question															
Supportive	2	2	-	-	-	1	-	-	1						
Corrective	-	1	-												
Corrective Information Comment				-	1	-									
Expressive Reaction	1	-	-												
Challenge Judgement													1	-	-
Check Message	-	-	1												
Prohibitive Directive	-	1	-												
Maintain Interest				1	-	-									
Clarification Seek	3	-	-												
Affirmative Repeat	-	1	-												
Success	1	-	-												
Encourage	-	1	-												
Imposition Softener													-	1	-

Table 49b

Jack, 20m - Mother's Utterances

Function	Rising Intonation Group									
	Simple				Jump				Large Jump				Slope				Undulating			
	M L	L	M H		M L	L	M H		M L	L	M H		M L	L	M H		M L	L	M H	
Positive Directive	-	1	-	-	1	2	-	-	-	3	-	-	-	-	1	-	-	3	1	-
Information Comment	-	1	-	-	-	-	1	-					-	-	1	-	-	2	-	-
Didactic Question	-	1	1	-	-	1	-	-												
Information Question																				
Supportive	1	1	-	2	1	-	-	-	1	-	-	-								
Corrective	-	-	1	-																
Corrective Information Comment					-	1	-	-												
Expressive Reaction	-	1	-	-																
Challenge Judgement																	-	1	-	-
Check Message	-	1	-																	
Prohibitive Directive	-	-	1	-																
Maintain Interest					-	1	-	-												
Clarification Seek	-	-	-	3																
Affirmative Repeat	-	1	-	-																
Success	-	1	-	-																
Encourage	-	1	-	-																
Imposition Softener																	-	1	-	-

Table 50

Jack, 20m - Mother's Utterances

	Level Intonation Division Pitch Height					
Function	L	ML	M	MH	H	Total
Positive Directive		2	6	4		12
Information Comment						
Didactic Question						
Information Question				1		1
Supportive			1			1
Corrective			1			1
Affirmative		1				1
Expressive Reaction		1	3	1		5
Prohibitive Directive		1		1		2
Unsuccess			1			1
		5	12	7		24

Table 64

Jack, 23m - Mother's Utterances

Function	Intonation Division			
	Falling	Rising	Level	Total
Positive Directive	16	8	3	27
Information Comment	7	6		13
Didactic Question	13	10		23
Information Question	12	2	1	15
Supportive	9		1	10
Opposive	5	1		6
Corrective	1	6	2	9
Corrective Comment	1	1		2
Corrective Information Comment	1			1
Affirmative		3		3
Affirmative Comment	2	1		3
Expressive Reaction	2	1	2	5
Didactic Model			1	1
Challenge Logic	1	2	1	4
Challenge Judgement	3	1		4
Check Message			1	1
Prohibitive Directive	2	2	3	7
Maintain Interest	2	1		3
Attention Focus	1			1
Acknowledge		1	1	2
Play		1	1	2
Clarification Seek		3		3
Readiness	1	1	1	3
Mock	3	1	1	5
Affirm Repeat		5		5
Appropriateness Repeat		2		2
Thanks		1		1
Compounds	26	13		39
	108	73	19	200

Table 65

Jack, 23m - Mother's Utterances

Function	Falling Intonation Group						
	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	7	3	3	1		2	16
Information Comment			2			5	7
Didactic Question	4	5	1			3	13
Information Question	3		2			7	12
Supportive	3		2			4	9
Opposive	3					2	5
Corrective	1						1
Corrective Comment						1	1
Corrective Information Comment				1			1
Affirmative Comment		2					2
Expressive Reaction	2						2
Challenge Logic		1					1
Challenge Judgement	1	2					3
Maintain Interest	1					1	2
Attention Focus	1						1
Readiness Marker	1						1
Mock	1	1				1	3
Compounds	(2)	(2)	(1)			(21)	26
	28	14	10	2		26	108

Table 65a

Jack, 23m - Mother's Utterances Pitch Range
Falling Intonation Group

Function	Simple			Jump			Large Jump			Marked Jump			Undulating		
	M	L	K	M	L	K	M	L	K	M	L	K			
Positive Directive	6	1	-	1	2	-	2	-	1	-	-	1	-	2	-
Information Comment							-	2	-				1	4	-
Didactic Question	2	2	-	4	1	-	1	-	-				-	1	2
Information Question	3	-	-				1	1	-				2	4	1
Supportive	1	2	-				2	-	-				-	4	-
Opposive	1	1	1										-	2	-
Corrective	1	-	-												
Corrective Comment													-	-	1
Corrective Information Comment							-	-	1						
Affirmative Comment				2	-	-									
Expressive Reaction	2	-	-												
Challenge Logic	1	-	-	-	-	1									
Challenge Judgement				-	1	-									
Prohibitive Directive	1	-	-	-	1	-									
Maintain Interest	-	1	-										-	1	-
Attention Focus	-	1	-												
Readiness Marker	1	-	-												
Disagree				-	1	-									
Gentle Mock	-	1	-	1	-	-							1	-	-

Table 65b

Jack, 23m - Mother's Utterances — Pitch Height

Falling Intonation Group

Function	Simple				Jump				Large Jump				Marked Jump				Undulating			
	M L	M M	H	H	M L	M M	H	H	M L	M M	H	H	M L	M M	H	H	M L	M M	H	H
Positive Directive	1	4	1	1	-	-	3	-	-	-	-	12	-	-	-	1	-	1	1	-
Information Comment									-	-	2	-					-	-	5	-
Didactic Question	-	2	2	-	-	2	3	-	-	1	-	-					-	-	3	-
Information Question	-	2	-	1					-	-	1	1					-	2	3	2
Supportive	-	1	2	-					-	-	2	-					-	-	2	2
Opposive	-	2	1	-													-	1	1	-
Corrective	-	1	-	-																
Corrective Comment																	-	-	-	1
Corrective Information Comment													-	-	1	-				
Affirmative Comment					-	-	1	1												
Expressive Reaction	-	1	1	-																
Challenge Logic	-	1	-	-	-	1	1	-												
Challenge Judgement					-	-	1	-												
Prohibitive Directive	1	-	-	-	-	-	1	-												
Maintain Interest	-	-	1	-													-	-	1	-
Attention Focus	-	1	-	-																
Readiness Marker	-	1	-	-																
Disagree					-	-	1	-												
Gentle Mock	-	1	-	-	-	1	-	-									-	1	-	-

Table 66
Jack, 23m - Mother's Utterances

Function	Rising Intonation Group						
	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	1		1		1	5	8
Information Comment	1	1				4	6
Didactic Question	2	3	2			3	10
Information Question			1			1	2
Supportive							
Opposive						1	1
Corrective	6						6
Corrective Comment					1		1
Corrective Information Comment							
Affirmative	3						3
Affirmative Comment		1					1
Expressive Reaction		1					1
Didactic Model							
Challenge Logic	1	1					2
Challenge Judgement	1						1
Prohibitive Directive	1		1				2
Maintain Interest	1						1
Attention Focus							
Acknowledge	1						1
Play		1					1
Clarification Seek	3						3
Affirm Repeat	3	1	1				5
Appropriateness Repeat		2					2
Thanks	1						1
Readiness		1					1
Mock						1	1
Compounds			(4)		(1)	(8)	13
	25	12	6		2	15	73

Table 66a

Jack, 23m - Mother's Utterances — Pitch Range

Rising Intonation Group

Function	Simple			Jump			Large Jump			Slope			Undulating		
	M	L	K	M	L	K	M	L	K	M	L	K	M	L	K
Positive Directive	1	-	-				1	-	-	1	-	-	2	3	-
Information Comment	1	-	-	1	-	-							-	4	-
Didactic Question	-	1	1	1	2	-	-	2	-				-	3	-
Information Question							-	-	1				-	-	1
Opposive													-	1	-
Corrective	4	2	-												
Corrective Comment										1	-	-			
Affirmative	1	2	-												
Affirmative Comment				-	1	-									
Expressive Reaction	-	1	-												
Challenge Logic	-	1	-	1	-	-									
Challenge Judgement	1	-	-												
Prohibitive Directive	1	-	-				1	-	-						
Maintain Interest	-	1	-												
Acknowledge	-	1	-												
Play				1	-	-									
Clarification Seek	1	2	-												
Affirmative Repeat	1	2	-	-	-	1	-	-	1						
Appropriateness Repeat				2	-	-									
Thanks Child	-	1	-												
Readiness Marker				-	1	-									
Gentle Mock													-	1	-

Table 66b

Jack, 23m - Mother's Utterances

Pitch Height

Function	Simple	Rising Intonation Group: Jump	Large Jump	Marked Jump	Slope	Undulating
	M M L L M H	M M L L M H	M M L L M H	M M L L M H	M M L L M H	M M L L M H
Positive Directive	- - 1 -		- 1 - -		- 1 - -	- 5 - -
Information Comment	- 1 - -	- - 1 -				1 3 - -
Didactic Question	- 1 1 -	- 3 - -	2 - - -			- 3 —
Information Question			1 - - -			1 - - -
Opposive						- 1 - -
Corrective	- 4 2 -					
Corrective Comment					- 1 - -	
Affirmative	- 3 - -					
Affirmative Comment		- 1- -				
Expressive Reaction	1 - - -					
Challenge Logic	- - 1 -	- - 1 -				
Challenge Judgement	- - 1 -					
Prohibitive Directive	- - 1 -		1 - - -			
Maintain Interest	- 1 - -					
Acknowledge	- 1 - -					
Play		- - 1 -				
Clarification Seek	- 2 1 -					
Affirmative Repeat	- 3 - -	1 - - -	1 - - -			
Appropriateness Repeat		- 2 - -				
Thanks Child	- 1 - -					
Readiness Marker		- 1 - -				
Gentle Mock						- 1 - -

Table 67

Jack, 23m - Mother's Utterances

	Level Intonation Division Pitch Height					
Function	L	ML	M	MH	H	Total
Positive Directive			3			3
Information Comment						
Didactic Question						
Information Question				1		1
Supportive					1	1
Corrective		2				2
Expressive Reaction			1	1		2
Didactic Model			1			1
Challenge Logic				1		1
Check Message					1	1
Prohibitive Directive		2	1			3
Acknowledge		1				1
Play		1				1
Readiness			1			1
Mock			1			1
		6	8	3	2	19

Table 78
Jack, 25m - Mother's Utterances

Function	Intonation Division: Falling	Rising	Level	Total
Positive Directive	24	7	4	35
Information Comment	18	8		26
Didactic Question	6	9		15
Information Question	6			6
Supportive	10	7	1	18
Opposive	4		2	6
Corrective	3	2		5
Corrective Comment	1			1
Corrective Information Comment	2			2
Affirmative	1	3	2	6
Affirmative Comment		1		1
Expressive Reaction	4			4
Didactic Model	3			3
Prompt			1	1
Corrective Prompt		1		1
Challenge Logic	1	1		2
Challenge Judgement	1	1		2
Prohibitive Directive		2	1	3
Acknowledge		1		1
Clarification Seek		1		1
Success	1	9		10
Appropriateness Repeat	1			1
Seek Re-establish Focus	1			1
Readiness Marker	2			2
Encourage		1		1
Completeness Marker		1		1
Agreement Seek			1	1
Compounds	30	13	1	44
	119	68	13	200

Table 79

Jack, 25m - Mother's Utterances

Function	Falling Intonation Group: Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	6	5	4			9	24
Information Comment	1	3	2		1	11	18
Didactic Question		3				3	6
Information Question		1	4			1	6
Supportive	6	1				3	10
Opposive	2	1				1	4
Corrective	3						3
Corrective Comment						1	1
Corrective Information Comment	1	1					2
Affirmative	1						1
Expressive Reaction	3					1	4
Didactic Model	2	1					3
Challenge Logic	1						1
Challenge Judgement			1				1
Success	1						1
Seek Re-establish Focus	1						1
Appropriateness Repeat	1						1
Readiness Marker	2						2
Compounds		(2)				(28)	30
	31	16	11		1	30	119

Table 79a

Jack, 25m - Mother's Utterances — Pitch Range

Function	Falling Intonation Group: Simple			Jump			Large Jump			Slope			Undulating		
	M	L	K	M	L	K	M	L	K	M	L	K	M	L	K
Positive Directive	4	2	-	3	2	-	-	4	-				3	6	-
Information Comment	1	-	-	2	1	-	-	2	-	1	-	-	2	8	1
Didactic Question				3	-	-							2	1	-
Information Question				-	1	-	3	1	-				1	-	-
Supportive	5	1	-	1	-	-							-	3	-
Opposive	2	-	-	-	1	-							-	1	-
Corrective	3	-	-												
Corrective Comment													-	1	-
Corrective Information Comment	-	1	-	1	-	-									
Affirmative	1	-	-												
Expressive Reaction	2	-	1										-	1	-
Didactic Model	2	1	-	-	1	-									
Challenge Logic	-	1	-												
Challenge Judgement							1	-	-						
Success	-	1	-												
New Focus Seek															
Re-establish Focus Seek	-	1	-												
Readiness Marker	2	-	-												

Table 79b

Jack, 25m - Mother's Utterances — Pitch Height

Function	Falling Intonation Group: Simple				Jump				Large Jump				Slope				Undulating			
	M L	M M	M H	H	M L	M M	M H	H	M L	M M	M H	H	M L	M M	M H	H	M L	M M	M H	H
Positive Directive	1	4	1		-	2	3		-	-	4	-					-	4	5	-
Information Comment	-	1	-	-	1	2	-	-	-	-	1	1	1	-	-	-	-	5	3	3
Didactic Question					-	2	1	-									-	2	1	-
Information Question					-	1	-	-	-	-	4	-					-	1	-	-
Supportive	-	6	-	-	-	1	-	-									-	1	1	1
Opposive	1	-	1	-	-	1	-	-									-	1	-	-
Corrective	2	1	-	-																
Corrective Comment																	-	1	-	-
Corrective Information Comment	-	-	1	-	-	1	-	-												
Affirmative	-	1	-	-																
Expressive Reaction	-	2	1	-													-	-	1	
Didactic Model	1	1	1	-	1	-	-	-												
Challenge Logic	-	-	1	-																
Challenge Judgement									-	-	-	1								
Success	-	-	-	1																
New Focus Seek																				
Re-establish Focus Seek	-	1	-	-																
Readiness Marker	-	2	-	-																

Table 80
Jack, 25m - Mother's Utterances

Function	Rising Intonation Group					Total
	Simple	Jump	Large Jump	Slope	Undulating	
Positive Directive	1	3			3	7
Information Comment	2	1			5	8
Didactic Question	5	2		1	1	9
Information Question						
Supportive	4	2	1			7
Corrective	2					2
Affirmative	3					3
Affirmative Comment		1				1
Corrective Prompt	1					1
Challenge Logic					1	1
Challenge Judgement					1	1
Prohibitive Directive	1				1	2
Acknowledge	1					1
Clarification Seek	1					1
Success	8		1			9
Encourage	1					1
Completeness Marker	1					1
Compounds	(1)	(2)			(10)	13
	31	9	2	1	12	68

Table 80a

Jack, 25m - Mother's Utterances

Function	Pitch Range: Rising Intonation Group														
	Simple			Jump			Large Jump			Slope			Undulating		
	M			M			M			M			M		
	M	L	K	M	L	K	M	L	K	M	L	K	M	L	K
Positive Directive	1	-	-	1	2	-							1	2	-
Information Comment	2	-	-	-	1	-							1	4	-
Didactic Question	1	4	-	1	1	-				1	-	-	1	-	-
Information Question															
Supportive	1	3	-	2	-	-	1	-	-						
Corrective	2	-	-												
Affirmative	3	-	-												
Affirmative Comment				1	-	-									
Prompt	1	-	-												
Challenge Logic													-	1	-
Challenge Judgement													1	-	-
Prohibitive Directive	-	1	-										1	-	-
Acknowledge	-	1	-												
Clarification Seek	1	-	-												
Success	6	1	1				-	1	-						
Encouraging	-	1	-												
Completeness	-	1	-												

Table 80b

Jack, 25m - Mother's Utterances

Pitch Height

Rising Intonation Group

Function	Simple				Jump				Large Jump				Slope				Undulating			
	L	M L	M H		L	M L	M H		L	M L	M H		L	M L	M H		L	M L	M H	
Positive Directive	-	-	1	-	1	2	-	-									1	1	1	-
Information Comment	-	1	1	-	-	1	-	-									2	2	1	-
Didactic Question	-	3	2	-	-	2	-	-					-	1	-	-	-	1	-	-
Information Question																				
Supportive	1	2	1	-	1	-	1	-	-	1	-	-								
Corrective	-	2	-	-																
Affirmative	1	2	-	-																
Affirmative Comment					-	1	-	-												
Prompt	-	-	1	-																
Challenge Logic																	1	-	-	-
Challenge Judgement																	1	-	-	-
Prohibitive Directive	-	-	1	-													-	1	-	-
Acknowledge	1	-	-	-																
Clarification Seek	-	-	1	-																
Success	-	6	2	-					-	1	-	-								
Encouraging	1	-	-	-																
Completeness Marker	1	-	-	-																

Table 81

Jack, 25m - Mother's Utterances

Function	Level Intonation Division Pitch Height L	ML	M	MH	H	Total
Positive Directive		2	1	1		4
Information Comment						
Didactic Question						
Information Question						
Supportive				1		1
Opposive	1		1			2
Affirmative			2			2
Prompt			1			1
Prohibitive Directive			1			1
Agreement Seek			1			1
Compounds			(1)			1
	1	2	7	2		13

Table 92
Jack, 23m - Mother's Utterances

Function	Intonation Division			
	Falling	Rising	Level	Total
Positive Directive	16	5		21
Information Comment	27	14		41
Didactic Question	10	8		18
Information Question	4	3		7
Supportive	3	1		4
Opposive	1	3		4
Corrective		3		3
Corrective Comment	1			1
Corrective Information Comment	1	1		2
Affirmative	1	11	3	15
Expressive Reaction	1			1
Didactic Model	4			4
Corrective Prompt	1			1
Challenge Logic		1		1
Challenge Judgement	2	1		3
Check Message	2			2
Agreeing			1	1
Dialogue Device	1			1
Acknowledge	1			1
Play	1	3		4
Success	2			2
Encourage	3			3
Affirm Repeat	1			1
Readiness Marker	1			1
Appropriateness Repeat	1			1
Mock	2	1		3
Conversation Device	1			1
Agreement Seek		1		1
Pinpoint			2	2
Compounds	29	18		47
	120	74	6	200

Table 93
Jack, 28m - Mother's Utterances

Function	Falling Intonation Group						
	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	8	4	1			3	16
Information Comment	2	3	5			17	27
Didactic Question	1	3	3			3	10
Information Question	1	1				2	4
Supportive	3						3
Opposive						1	1
Corrective Comment						1	1
Corrective Information Comment			1				1
Affirmative	1						1
Expressive Reaction		1					1
Didactic Model	2		1				3
Corrective Prompt		1					1
Challenge Judgement	1				1		2
Check Message			1			1	2
Dialogue Device			2				2
Acknowledge	1						1
Play						1	1
Success	1	1					2
Encourage	2	1					3
Affirm Repeat	1						1
Readiness Marker	1						1
Appropriateness Repeat	1						1
Gentle Mock	2						2
Conversation Device			1				1
Compounds	(1)		(1)			(27)	29
	28	15	15		1	29	120

Table 93a

Jack, 28m - Mother's Utterances — Pitch Range

Function	Falling Intonation Group: Simple			Jump			Large Jump			Slope			Undulating		
	M	L	K	M	L	K	M	L	K	M	L	K	M	L	K
Positive Directive	4	4	-	-	4	-	-	1	-				=	3	=
Information Comment	1	1	-	-	3	-	1	4	-				3	14	-
Didactic Question	1	-	-	-	3	-	1	2	-				-	2	-
Information Question	1	-	-	1	-	-							-	2	-
Supportive	3	-	-												
Opposive													-	1	-
Corrective Comment													-	1	-
Corrective Information Comment							-	1	-						
Affirmative	-	1	-												
Expressive Reaction				-	1	-									
Didactic Model	2	-	-				-	1	-						
Corrective Prompt				1	-	-									
Challenge Judgement	1	-	-							1	-	-			
Check Message							-	1	-				-	1	-
Dialogue Device							-	2	-						
Acknowledge	1	-	-												
Play													1	-	-
Success	-	1	-	-	1	-									
Encouraging	1	1	-	-	-	1									
Affirmative Repeat	-	1	-												
Readiness Marker	1	-	-												
Appropriateness Repeat	1	-	-												
Gentle Mock	1	1	-												
Conversation Device							1	-	-						

Table 93b

Jack 35 Mother's Utterances

Pitch Height

Falling Intonation Group

Function	Simple				Jump				Large Jump				Slope				Undulating			
	M L	M M	H	H	M L	M M	H	H	M L	M M	H	H	M L	M M	H	H	M L	M M	H	H
Positive Directive	-	7	1	-	-	2	2	-	-	-	-	1					-	1	2	-
Information Comment	-	2	-	-	-	1	2	-	-	1	4	-					-	13	4	-
Didactic Question	-	1	-	-	-	-	3	-	-	-	3	-					-	1	2	-
Information Question	-	1	-	-	-	1	-	-									-	1	1	-
Supportive	1	2	-	-																
Opposive																	-	1	-	-
Corrective Comment																	-	-	1	-
Corrective Information Comment									-	-	1	-								
Affirmative	-	-	-	1																
Expressive Reaction					-	1	-	-												
Didactic Model	-	1	1	-					-	-	1	-								
Corrective Prompt					-	-	1	-												
Challenge Judgement	-	-	1	-									-	-	1	-				
Check Message									-	-	1	-					-	-	1	-
Dialogue Device									-	-	2	-								
Acknowledge	1	-	-	-																
Play																	-	1	-	-
Success	-	1	-	-	1	-	-	-												
Encouraging	-	1	1	-	-	-	1	-												
Affirmative Repeat	-	1	-	-																
Readiness Marker	-	1	-	-																
Appropriateness Repeat	1	-	-	-																
Gentle Mock	-	2	-	-																
Conversation Device									-	-	1	-								

Table 94

Jack, 28m - Mother's Utterances -

Function	Rising Intonation Group						Total
	Simple	Jump	Large	Marked Jump	Slope Jump	Undulating	
Positive Directive		1	1			3	5
Information Comment	3	5	1			5	14
Didactic Question	2	2	1		3		8
Information Question			1				1
Supportive		1					1
Opposive		1	1			1	3
Corrective	3						3
Corrective Information Comment						1	1
Affirmative	11						11
Challenge Logic		1					1
Challenge Judgement	1						1
Play	1	1				1	3
Clarification Seek	2						2
Agreement Seek	1						1
Mock						1	1
Compounds	(1)			(1)	(1)	(15)	18
	24	12	5		3	12	74

Table 94a

Jack, 28m - Mother's Utterances

Function	Pitch Range: Simple			Jump			Large Jump			Slope			Undulating		
	M	L	K	M	L	K	M	L	K	M	L	K	M	L	K
Positive Directive				1	-	-	1	-	-				-	3	-
Information Comment	2	1	-	1	3	1	1	-	-				-	5	-
Didactic Question	1	1	-	1	1	-	1	-	-	2	1	-			
Information Question							-	1	-						
Supportive				-	1	-									
Corrective	1	2	-												
Corrective Information Comment													-	1	-
Affirmative	8	3	-												
Challenge Logic				1	-	-									
Challenge Judgement	-	1	-												
Play	-	1	-	1	-	-							-	1	-
Clarification Seek	1	1	-												
Agreement Seek	1	-	-												
Gentle Mock													-	1	-
Opposive				1	-	-	1	-	-				-	1	-

Table 94b

Jack, 28m - Mother's Utterances

Pitch Height

Rising Intonation Group

Function	Simple				Jump				Large Jump				Slope				Undulating			
	L	M L	M	M H	L	M L	M	M H	L	M L	M	M H	L	M L	M	M H	L	M L	M	M H
Positive Directive					-	1	-	-	-	1	-	-					-	3	-	-
Information Comment	2	1	-	-	5	-	-	-	1	-	-	-					5	-	-	-
Didactic Question	-	2	-	-	-	2	-	-	1	-	-	-	1	-	2	-				
Information Question									1	-	-	-								
Supportive					1	-	-	-												
Opposive					-	1	-	-	1	-	-	-					1	-	-	-
Corrective	1	2	-	-																
Corrective Information Comment																	1	-	-	-
Affirmative	2	8	1	-																
Challenge Logic					-	1	-	-												
Challenge Judgement	-	1	-	-																
Play	-	1	-	-	1	-	-	-									-	1	-	-
Clarification Seek	-	-	2	-																
Agreement Seek	-	1	-	-																
Gentle Mock																	1	-	-	-

Table 95

Jack, 28m - Mother's Utterances

	Level Division					
	Pitch Height					
Function	L	ML	M	MH	H	Total
Affirmative		2	1			3
Pinpoint			2			2
Agreeing		1				1
		3	3			6

Appendix IV

Tables Relating Mother's Attribution of Meaning and Responses to the Intonation Shapes Used by the Child.

Table 10a

Jill, 16m - Mother's Attribution

Child's Utterances - Falling Intonation Group

Attribution	Simple Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	2	4				6
Intervening Event						
Non Overt	9 (3)					9
Attribution:						
Information Comment	1 (1)					1
Expressive	1					1

A figure in brackets alongside a number indicates the Content Clear utterances within that number.

Table 10b

Jill, 16m - Mother's Attribution

Child's Utterances - Rising Intonation Group

Attribution	Simple	Jump	Large Jump	Slope	Undulating	Total
No Utterance	1	1	1	1	1	5
Intervening Event	1		1			2
Non Overt	5		2			7
Attribution :						
Playnoise	1					1
						15

Table 10c

Jill, 16m - Mother's Attribution

	Child's Utterances - Level Pitch Height					
Attribution	L	ML	M	MH	H	Total
No Utterance			1			1
Intervening Event						-
Non Overt			2			2
Attribution :						
Expressive			1			1
						4

Table 11a

Jill, 16m - Mother's Response

	Child's Utterances - Falling Intonation Group			
Response Function	Simple	Jump	Large Jump	Total
No Utterance	2		4	6
Information Comment	4			4
Corrective	1			1
Affirmative	1			1
Challenge Judgement	2			2
Explain C's Expressiveness	1*			1
Affirm Repeat	1*			1
Expressive + Affirm Repeat	1			1
				17

Table 11b

Jill, 16m - Mother's Responses

Child's Utterances - Rising Intonation Group

Response Function	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	1	1	1		1	1	5
Information Comment			1				1
Didactic Question	3		1				4
Information Question	1						1
Challenge Judgement	1						1
Play	1*						1

Table 11c

Jill, 16m - Mother's Response

Child's Utterances - Level

Pitch Height

Response Function	L	ML	M	MH	H	Total
No Utterance			1			1
Didactic Question			1			1
Action Prompt			1			1
Expressive + Explain C's Experience			1			1
						4

Table 20a

Jill, 19m - Mother's Attribution

Child's Utterances - Falling Intonation Group

Attribution	Simple	Jump	Large Jump	Slope	Undulating	Total
No Utterance	8	2	1	1	1	13
Intervening Event		3 (1)	1		1	4
Non Overt	8	7	4 (1)		1	20
Attribution:						
Information Comment		1				1
Expressive	1					1
Playnoise					1	1
						40

Table 20b

Jill, 19m - Mother's Attribution

Child's Utterances - Rising Intonation Group

Attribution	Simple	Jump	Large Jump	Slope	Undulating	Total
No Utterance	4					4
Intervening Event	1					1
Non Overt	10	2	1			13
Attribution:						
Information Comment	1 (1)					1
						19

A figure in brackets alongside a number represents the Content Clear utterances within that number.

Table 20c

Jill, 19m - Mother's Attribution

Child's Utterances - Level

Pitch Height

	L	ML	M	MH	H	Total
No Utterance			5	5		10
Intervening Event			1			1
Non Overt		2	3	5	3	13
Attribution Expressive				1		1
						25

Table 21a

Jill, 19m - Mother's Response

Child's Utterances - Falling Intonation Group

Response Function	Simple	Jump	Large Jump	Slope	Undulating	Total
No Utterance	8	2	1	1	1	13
Information Comment	2					2
Information Question	4	2				6
Corrective Information Comment			1			1
Expressive Reaction	1					1
Acknowledge		3	2			5
Play	1*					1
Clarification Seek	1	2	2		1	6
Mirrors Child	1*					1

Figures with an asterisk represent responses which contained an overt attribution.

Table 21b

Jill, 19m - Mother's Response

Child's Utterances - Rising Intonation Group

Response Function	Simple	Jump	Large Jump	Slope	Undulating	Total
No Utterance	4					4
Information Comment	4					4
Information Question	1	1				2
Expressive Reaction	1			1		2
Agreeing	1*					1
Acknowledge	1	1				2
Play	1					1
Clarification Seek	2					2

Table 21c

Jill, 19m - Mother's Response

Child's Utterances - Level Intonation Division

Pitch Height

Response Function	L	ML	M	MH	H	Total
No Utterance			5		5	10
Positive Directive				2		2
Information Comment		1	1	2		4
Didactic Question			1			1
Information Question		1			1	2
Affirmative					1	1
Acknowledge					1	1
Play				1		1
Clarification Seek			1			1
Mirrors Child					1*	1

Figures with an asterisk represent responses which contained an overt attribution.

Table 34a

Jill, 24m - Mother's Attribution

Child's Utterances - Falling Intonation Group

Attribution	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	8(3)		4(1)		1	2	15
Intervening Event	1						1
Non Overt	22(8)	3(1)					25
Attribution:							
Information Comment	6(4)	1(1)	1(1)				8
Expressive Reaction	1						1

Table 34b

Jill, 24m - Mother's Attribution

Child's Utterances - Rising Intonation Group

Attribution	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	12(3)						12
Intervening Event							
Non Overt	19(6)				2		21
Attribution:							
Information Comment	2(2)						2

A figure in brackets alongside a number indicates the Content Clear utterances within that number.

Table 34c

Jill, 24m - Mother's Attribution

	Child's Utterances - Level Pitch Height					
	L	ML	M	MH	H	Total
No Utterances		1	9	5		15
Intervening Event				1	1	2
Non Overt		1	3			4
Attribution Information Comment		1		1		2
		3	12	7	1	23

Table 35a

Jill, 24m - Mother's Response

	Child's Utterances - Falling Intonation Group						
Response Function	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	8		4		1	2	15
Positive Directive	4						4
Information Comment	1* 4						5
Didactic Question	1* 7	1*					9
Information Question	2	1					3
Corrective	1						1
Corrective Comment		1					1
Didactic Model	1						1
Challenge Judgement		1					1
Check Message	1		1*				2
Clarification Seek	1						1
Exp + Info C	3* 1						4
Exp + Info Q	1*						1
Mirrors C	1*						1

Figures with an asterisk represent responses which contained an overt attribution.

Table 35b

Jill, 24m - Mother's Response

Child's Utterances - Rising Intonation Group

Response Function	Simple Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	12					12
Positive Directive	3					3
Information Comment	3			1		4
Didactic Question	1	1				2
Information Question	2					2
Corrective	4					4
Corrective Information Comment	1					1
Corrective Prompt	1					1
Check Message	1					1
Dialogue Device	1					1
Acknowledge	1			1		2
Repeat Affirm	2					2

Table 35c

Jill, 24m - Mother's Response

Child's Utterances - Level Intonation Division

Pitch Height

Response Function	L	ML	M	MH	H	Total
No Utterance		1	9	5		15
Positive Directive						
Information Comment						
Didactic Question				1		1
Information Question			1			1
Corrective		1				1
Corrective Comment		1				1
Affirmative			1			1
Completeness Marker			1			1

Table 56a

Jack, 20m - Mother's Attribution

Falling Intonation Group

Attribution	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	6(1)	2				1	9
Intervening Event							
Non Overt	1	1					2
Attribution:							
Information Comment			1				1

Table 56b

Jack, 20m - Mother's Attribution

Child's Utterances - Rising Intonation Group

Attribution	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	4						4
Intervening Event	1						1
Non Overt	9(3)	2(1)				1	12
Attribution:							
Information Comment	2(1)						2
Positive Directive	1						1

A figure in brackets alongside a number indicates the Content Clear utterances within that number.

Table 56c

Jack, 20m - Mother's Attribution - Child's Utterances Level

	Pitch Height					
Attribution	L	ML	M	MH	H	Total
No Utterance		5	6	5		16
Intervening Event		1	1			2
Non Overt	1	2	5	3	1 (1)	11
Attribution:						
Information Comment			2			2
Positive Directive	1		1			2

A figure in brackets alongside a number indicates the Content Clear utterances within that number.

Table 57a

Jack, 20m - Mother's Response

	Child's Utterances - Falling Intonation Group						
Response Function	Simple	Jump	Large Jump	Marked Jump	Slope Jump	Undulating	Total
Affirmative	1						1
Expressive Reaction			1*				1
Laughter	1						1

Figures with an asterisk represent responses which contained an overt attribution.

Table 57b

Jack, 20m - Mother's Response

Child's Utterances - Rising Intonation Group

Response Function	Simple Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	1, 1*					2
Affirmative	4	1			1	6
Corrective + Info Comment		1				1
Corrective + Didactic Question	1					1
Repeat Affirm	2*					2
Clarification Seek	3					3

Figures with an asterisk represent responses which contained an overt attribution.

Table 57c

Jack, 20m - Mother's Response

Child's Level Shapes

Pitch Height

Response Function	L	ML	M	MH	H	Total	
No Utterance		5	6		5	16	
Positive Directive	1	1	1	1		4	
Information Comment			1,1*			2	
Supportive				1		1	
Corrective Information Comment				1			1
Check Message		1				1	
Prohibitive Directive			1*			1	
Agreeing					1	1	
Repeat Affirm			1*			1	
Refuse to comply	1*					1	
Clarification Seek			1	1		2	

Figures with an asterisk represent responses which contained an overt attribution.

Table 68a

Jack, 23m Mother's Attribution

Attribution	Child's Utterances - Falling Intonation Group						
	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	13(3)	3(3)	2			1	19
Intervening Event	1						1
Non Overt	18(15)	7(7)	4(3)			3	32
Attribution:							
Information Comment					1(1)	1	2
Positive Directive	1(1)						1
							55

Table 68b

Jack, 23m - Mother's Attribution

Attribution	Child's Utterances - Rising Intonation Group						
	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	10(7)		1				11
Intervening Event							
Non Overt	18(7)	2	1(1)				21
Attribution:							
Information Comment	7(6)	1(1)					8
							40

A figure in brackets alongide a number indicates the Content Clear utterances within that number.

Table 68c

Jack, 23m Mother's Attribution

	Child's Utterances - Level Intonation Division					
	Pitch Height					
Attribution	L	ML	M	MH	H	Total
No Utterance	3(2)	3(1)	3	1(1)		10
Intervening Event			1	1		2
Non Overt		3	5(2)	1(1)	1(1)	10
Attribution						
						22

A figure in brackets alongside a number indicates the Content Clear utterances within that number.

Table 69a

Jack, 23m - Mother's Response

	Child's Utterances - Falling Intonation Group						
Response Function	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	1,1*		1				3
Information Comment	1						1
Didactic Question							
Information Question					1*		1
Supportive	1	2					3
Opposive	1					1	2
Corrective	8	1					9
Affirmative	2	1	1				4
Affirmative Comment	1		1				2
Expressive Reaction						1	1
Challenge Logic		2	1				3
Prohibitive Directive	1						1
Acknowledge	1						1
Clarification Seek	1	1				1	3
Repeat Affirm						1*	1

Figures with an asterisk represent responses which contained an overt attribution.

Table 69b

Jack, 23m - Mother's Response

Response Function	Child's Utterances - Rising Intonation Group: Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
Positive Directive	2	1					3
Information Comment	2						2
Didactic Question	5						5
Information Question	3						3
Supportive	1						1
Opposive	1						1
Corrective				1			1
Challenge Logic	1						1
Challenge Judgement	1						1
Prohibitive Directive	1	1					2
Acknowledge	1						1
Repeat Affirm	6*	1*					7
Mock	1*						1

Figures with a asterisk represent responses which contained an overt attribution.

Table 69c

Jack, 23m - Mother's Response

Response Function	Child's Utterances - Level Intonation Division: Pitch Height L	ML	M	MH	H	Total
Positive Directive						
Information Comment		1	1			2
Didactic Question		1				1
Information Question				1		1
Affirmative			1		1	2
Challenge Logic			1			1
Prohibitive Directive		1				1
Clarification Seek			1			1
Thanks Child			1			1

Table 82a

Jack, 25m Mother's Attribution

Child's Utterances - Falling Intonation Group

Attribution	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	4(3)	1					5
Intervening Event	1(1)						1
Non Overt	15(8)		2(1)		2(2)	2(2)	21
Attribution:							
Information Comment	2(2)		1(1)				3

Table 82b

Jack, 25m Mother's Attribution

Child's Utterances - Rising Intonation Group

Attribution	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	2	2(2)					4
Intervening Event							
Non Overt	12(8)	1(1)	2				15
Attribution :							
Information Comment		1(1)					1

A figure in brackets alongside a number indicates the Content Clear utterances within that number.

Table 82c

Jack, 25m - Mother's Attribution

Attribution	Child's Utterances - Level Intonation Division Pitch Height L	ML	M	MH	H	Total
No Utterance		1	1(1)	2(2)		4
Intervening Event		1(1)				1
Non Overt		2(1)	3(3)			5
Attribution Information Comment			1(1)			1

A figure in brakcets alongide a number indicates the Content Clear utterances within that number.

Table 83a
Jack, 25m - Mother's Response

Response Function	Child's Utterances - Falling Intonation Group Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance		4	1				5
Positive Directive		2,1*				1	4
Information Comment		2	1				3
Didactic Question							
Information Question							
Supportive		3					3
Opposive					1	1	2
Corrective		1					1
Corrective Comment			1		1		2
Corrective Information Comment		2					2
Affirmative		2					2
Prompt		1					1
Dialogue Device			1*				1
Clarification Seek		1					1
Appropriateness Repeat		1*					1
Laughter		1					1

Figures with an asterisk represent responses which contained an overt attribution.

Table 83b

Jack, 25m - Mother's Response

Child's Utterances - Rising Intonation Group

Response Function	Simple Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	2	2				4
Positive Directive	1	1				2
Information Comment	2					2
Didactic Question						
Information Question						
Supportive		1				1
Opposive	1					1
Corrective	2					2
Corrective Comment	1					1
Affirmative	1	1				2
Laughter	1					1
Corrective + Info Comment	1*					1
Action Readiness	1					1
Repeat Affirm	1					1
Encourage	1					1

Table 83c

Jack, 25m - Mother's Response

Child's Utterances - Level Intonation Division
Pitch Height

Response Function	L	ML	M	MH	H	Total
No Utterance		1	1	2		4
Opposive		1				1
Corrective Comment			1*			1
Affirmative			1			1
Expressive Reaction			1			1
Expressive + Opposive		1				1
Laughter			1			1

Figures with an asterisk represent responses which contained an overt attribution.

Table 96a
Jack, 28m - Mother's Attribution

Attribution	Child's Utterances Falling Intonation Group						
	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	5(1)	2	5(2)	1(1)	1	3(2)	17
Intervening Event	1						1
Non Overt	20(15)	5(4)	4(4)		2(2)	3(3)	34
Attribution:							
Information Comment	3(3)	1(1)				1(1)	5
Information Question						1(1)	1

Table 96b
Jack, 28m - Mother's Attribution

Attribution	Child's Utterances Rising Intonation Group						
	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	4(2)	1(1)	3(2)			2(1)	10
Intervening Event							
Non Overt	1	2(2)	1(1)				4
Attribution:							
Information Comment	1(1)						1

A figure in brackets alongside a number indicates the Content Clear utterances within that number.

Table 96c

Jack, 28m - Mother's Attribution

Child's Utterances - Level

Pitch Height

	L	ML	M	MH	H	Total
No Utterance	1(1)	1	5(3)	2		9
Intervening Event	4		2			6
Non Overt	1(1)	1	2(1)	1(1)		5

A figure in brackets alongside a number represents the Content Clear utterances within that number.

Table 97a

Jack, 28m - Mother's Response

Child's Utterances

Falling Intonation Group

Response Function	Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	5	2	5	1	1	3	17
Positive Directive	1						1
Information Comment	1,1*	2					4
Didactic Question		1					1
Information Question							
Supportive	1						1
Corrective	5						5
Corrective Comment		1					1
Corrective Information Comment	2					1	3
Affirmative	3,1*	1	2		1	1	9
Didactic Model	2						2
Corrective Prompt	1						1
Check Message			2				2
Dialogue Device						1*	1
Acknowledge Question						1*	1
Acknowledge	1						1
Pinpoint + Info Comment						1	1
Repeat Affirm	2*				1		3
Laughter	1						1
Allows Answer	1						1
(Question Form Unfinished)		1					1

Figures with an asterisk represent responses which contained an overt attribution.

Table 97b
Jack, 28m - Mother's Response

Response Function	Child's Utterances: Rising Intonation Group: Simple	Jump	Large Jump	Marked Jump	Slope	Undulating	Total
No Utterance	4	1	3			2	10
Positive Directive							
Information Comment			1				1
Didactic Question							
Information Question							
Affirmative	1*	2					3
Clarification Seek	1						1

Figures with an asterisk represent responses which contained an overt attribution.

Table 97c
Jack, 28m Mother's Response

Response Function	Child's Utterances: Level Intonation Division: Pitch Height: L	ML	M	MH	H	Total
No Utterance	1	1	5	2		9
Supportive		1				1
Affirmative Comment				1		1
Acknowledge Question			1			1
Mock	1					1

Appendix V

Tables showing the Detailed Description of the Mother's Information Comments and Positive Directives for Jill at 16 months, and Jack at 20 months

Table 5

Jill, 16m - Detailed Description of Mother's Information Comments: Falling

Simple Fall

M M - declaration of mother's intended action + physical assistance.

L MH - repeat utterance, procedural, manner of action + demonstration

L MH - procedural comment, object position in action

Jump Fall

L MH - procedural explanation, action on object

L MH - object label, answering own question

L MH - procedural explanation, deictic emphasis of location + point to location

Large Jump Fall

L MH - comment expanding on mother's own idea + joining in the child's activity

L(prog) MH - object label, answering own question

Table 5 (continued)

Undulating Fall

M M -	procedural, specifying object and location + point to location
M MH-	procedural, specifying object and emphsising location, + point to location
L MH-	procedural, manner of action
L MH-	procedural, spatial positioning of object
L MH-	object label and shape, possible contrast of shape attribute
L MH-	procedural, spatial positioning of object
MK(prog) H -	object label, self correction

Table 6

Jill, 16m Detailed Description of Mother's Information Comments: Rising

Simple Rise

M ML-	procedural, conditional permission (upon doing a Positive Directive)
L ML-	object shape
L M -	identify/specify location
L (prog) M -	object shape

Jump Rise

L ML-	object and colour and specify location of object + point to location
L ML-	identify object

Large Jump Rise

M ML-	procedural, action readiness
(cum) L ML-	procedural, object label and specifying location + point to location
MK(prog) L-	procedural, specifying location
(+plat)MK ML-	procedural, deictic emphasis of object and specifying location + point to location
MK(prog) ML-	procedural, specifying location

Table 6 (continued)

Undulating Rise

M ML-	procedural, positioning of object
M M-	repeat comment, specifying location with emphasis
L ML-	procedural, location for object
L ML-	description of child's intended action
L ML-	procedural, specifying location + physically clasping child's hand
L(prog) ML-	object shape (possibly contrastive)
L M-	comparing object to personal experience of child.
L M-	procedural, position of object for action + physically clasping child's hand
L M-	procedural, description of procedure + physically clasping child"s hand
MK ML-	procedural, specifying location + point to location
MK(prog) ML-	positive evaluation of child's object + added interest.

Table 7

Jill, 16m - Detailed Description of Mother's Positive Directives: Falling

Simple Fall		Success
M M-	directing child to attempt action again	+VE
M M-	action on object and emphasising location	+VE
L M-	attempt action again	+VE
L(plat+prog)M	alternative action with object	-VE
L MH-	alternative action on object (3rd attempt)	-VE
L MH-	specifying object for further action attempt + putting object into position	+VE
L MH-	specify timing for further action	+VE
MK(plat+prog) MH	alternative action on object (4th attempt)	-VE
Jump Fall		
M MH-	question form - child's memory of action routine + point to action mechanism	+VE
Slope		
L M-	new focus seek directive, find further objects + pointing to objects behind child	+VE
L M-	alternative action on object (2nd attempt) + demonstrating action	-VE
Undulating Fall		
MK(prog) H-	emphasising child to do action + holding out object to child	+VE

Table 8

Jill, 16m Detailed Description of Mother's Positive Directives: Rising

Simple Rise		Success
M M-	emphasising location for action	-VE
L M-	object transfer marker + holding object out to child	+VE
Jump Rise		
L ML-	description attribute of object for action + holding object out to child	+VE
Large Jump Rise		
(cum) L ML-	action on object + emphasis	+VE
L ML-	specifying object for action	+VE
Undulating Rise		
L(prog) ML-	emphasising child to do action	+VE
L ML-	procedural, general activity with objects	+VE
L M-	specifying location for action on object + point to location	+VE
L M-	question form - action on object	+VE

Table 9

Jill, 16m - Detailed Description of Mother's Positive Directives - Level

Pitch Height		Success
MH-	action on object	-VE

Table 51

Jack, 20m - Detailed Description of Mother's Positive Directives - Falling

Simple Fall		Success
M ML -	specifying location for action with deictic emphasis + mother pointing to location	+VE
M M -	perform with object and specifying result	+VE
M M -	location for action with deictic emphasis + mother pointing to location	+VE
M M -	visual attention and the child's name 4th repeat directive + mother pointing to location for action	-VE
M M -	body movement specifying time, repeat directive	-VE
M M -	directive marker, 4th utterance in sequence + mother holding hand out towards child	-VE
M M(+plat) -	Question form, object for next action + mother pointing to object	+VE
L M -	procedural, next object for action with deictic emphasis + mother holding object towards child	+VE
L M -	directive marker, 5th directive in sequence	-VE

Table 51 (continued)

L M -	directive marker, 3rd utterance in sequence	-VE
L M -	directive marker, 5th utterance in sequence + mother pointing to alternative part of object for action	-VE
L MH -	body movement and location, 6th directive in sequence	-VE
L MH -	body movement, 3rd directive in sequence	-VE
L MH -	body movement, 6th utterance in sequence	-VE
L MH -	procedural, action on object	+VE
L MH -	procedural, action control	+VE
L MH -	directive marker, 2nd directive in sequence	-VE
L MH -	child's name directive marker, 2nd repeat + Attention Focus Seek	+VE
L MH -	repeat attempted action + mother holding object out towards child	-VE
L MH -	repeat attempted action (Quiet) + mother holding object out towards child	+VE
L MH(+plat) -	perform for mother with object	+VE
MK MH -	deictic emphasis of location, 5th repeat directive + mother point tapping at location	+VE

Table 51 (continued)

MK MH(+plat) -	Emphasising child to act	+VE
MK(+prog)MH -	visual attention and child's name Attention Focus Seek	+VE
Jump Fall		
M ML -	body movement and general activity with object, New Focus Seek	+VE
(+plat) M M -	procedural, time and action + mother pointing to aspect of object	+VE
M MH -	body movement and location	-VE
M MH -	body movement and general attention Attention Focus Seek	-VE
L MH(+plat) -	procedural, action with deictic emphasis + mother pointing to aspect of object	+VE
(+plat)L MH(+plat)-	body movement action on object to location and time	-VE
MK MH -	action with deictic emphasis Attention Focus Seek	-VE
MK MH(+plat) -	body movement and seek additional object New Focus Seek	+VE
Large Jump Fall		
(+plat) M MH -	body movement on object towards person	-VE
L MH -	action on object Re-establish Focus Seek	+VE
LMH -	location for action with deictic emphasis	-VE
LMH -	location for action (Quiet) 4th repeat directive + mother point tapping at location	-VE
Falling Slope		
M M -	action to person	+VE
Undulating Fall		
L M -	action on object and child's name 11 syllables	-VE
L M -	action of person, 5 syllables	+VE

Table 51 (continued)

L MH -	procedural, action and second action + mother pointing to aspects of object	+VE
L MH -	action on contrasting object New Focus Seek	-VE

Table 52

Jack, 20m - Detailed Description of Mother's Positive Directives - Rising

		Success
Simple Rise		
L ML -	Child's name (with slight negative affect) + mother beckoning	+VE
Jump Rise		
L ML -	procedural, next action	-VE
MK(+prog) L(+plat) -	procedural, repeat action	+VE
Large Jump Rise		
M ML -	action on object, and location Re-establish Focus Seek	-VE
M ML -	re-start action	+VE
M ML -	procedural, next action	-VE
Rising Slope		
M M -	Question form, perform with object with specific result + mother moving object towards child	-VE
Undulating Rise		
M ML -	procedural, specifying time and nature of action, contrastive	+VE
M ML -	procedural, specifying timing and identity of next object for action	-VE
L M -	action on object and location Re-establish Focus Seek + beckoning with head	-VE
MK ML -	emphasising location of child's position, and endearment, 3rd utterance in sequence	-VE

Table 53

Jack, 20m - Detailed Description of Mother's Positive Directives - Level

Pitch height		Success
ML -	visual attention, New Focus Seek + mother leaning towards new object	+VE
ML -	visual attention, Pinpoint Attention + mother demonstrating on object	+VE
M	visual attention, Pinpoint Attention + mother attempting to acquire object prior to demonstration	+VE
M -	visual attention, Attention Focus Seek	+VE
M -	visual attention	+VE
M -	visual attention, Pinpoint Attention + mother holding object at child's hand	+VE
M -	visual attention + mother holding object in air prior to demonstration	+VE
M -	visual attention 2nd repeat Directive + mother pointing to location for action	-VE
MH -	Specifying location for body position 4th utterance in sequence	-Ve
MH -	visual attention, Pinpoint Attention + mother demonstrating on object	+VE
MH -	object transfer marker + mother holding object out to child	+VE
MH -	visual attention Attention Focus Seek, repeat Directive	-VE

Table 54

Jack, 20m Detailed Description of Mother's Information Comments - Falling

Simple Fall

L M -	procedural, explaining lock of success
L MH -	procedural, control on activity

Jump Fall

M MH -	identifying object
M MH -	identifying noise
L MH -	description of object activity fault
L MH -	description of number and state of objects
L MH -	procedural action description with emphasis + holding object towards child

Falling Slope

M MH -	mother's knowledge, not understanding child's meaning, slight -ve affect

Undulating Fall

M MH -	evaluation of object with agreement tag
L MH -	judgement of object stability
L MH -	procedural, action on object
MK MH -	identifying object, with added interest
MK MH -	identifying object, with added interest, answering own question, Attention Focus Seek

Table 55

Jack, 20m Detailed Description of Mother's Information Comments - Rising

Simple Rise

L ML -	procedural, action description + mother demonstrating, holding child.

Jump Rise

L M -	procedural, next object for action with deictic emphasis + mother pointing to object

Rising Slope

M M -	+ ve evaluation of child's object, with added + ve affect

Undulating

M ML -	mother evaluating her interpretation of the child's reference
L ML -	specifying additional object type with contrasting attributes.

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